=> FILE REG
FILE 'REGISTRY' ENTERED AT 15:42:41 ON 19 JAN 2006
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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 17 JAN 2006 HIGHEST RN 872085-61-5
DICTIONARY FILE UPDATES: 17 JAN 2006 HIGHEST RN 872085-61-5

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

Please note that search-term pricing does apply when conducting SmartSELECT searches.

****
* *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added, *
* effective March 20, 2005. A new display format, IDERL, is now *
* available and contains the CA role and document type information. *
* *
****

Structure search iteration limits have been increased. See HELP SLIMITS for details.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> FILE HCAPLU
FILE 'HCAPLUS' ENTERED AT 15:42:46 ON 19 JAN 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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FILE COVERS 1907 - 19 Jan 2006 VOL 144 ISS 4
FILE LAST UPDATED: 18 Jan 2006 (20060118/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> D QUE   L57
L1        104778 SEA FILE=REGISTRY ABB=ON  333.401.37/RID
L3        278931 SEA FILE=REGISTRY ABB=ON  16.165.12/RID
L4        301680 SEA FILE=REGISTRY ABB=ON  16.195.24/RID
L5        545041 SEA FILE=REGISTRY ABB=ON  333.151.57/RID
L6        235490 SEA FILE=REGISTRY ABB=ON  16.195.22/RID
L7        107403 SEA FILE=REGISTRY ABB=ON  333.401.35/RID
L8         30485 SEA FILE=REGISTRY ABB=ON  16.515.22/RID
L10         4887 SEA FILE=REGISTRY ABB=ON  16.213.13/RID
L11       301680 SEA FILE=REGISTRY ABB=ON  L4 OR L4
L12       156421 SEA FILE=REGISTRY RAN=(,357260-15-2) ABB=ON  L4 OR L4
L13       145259 SEA FILE=REGISTRY ABB=ON  L11 NOT L12
L14        48372 SEA FILE=HCAPLUS ABB=ON  L1
L15        44086 SEA FILE=HCAPLUS ABB=ON  L3
L16        80707 SEA FILE=HCAPLUS ABB=ON  L6
L17        14186 SEA FILE=HCAPLUS ABB=ON  L7
L18        15367 SEA FILE=HCAPLUS ABB=ON  L8
L19         2437 SEA FILE=HCAPLUS ABB=ON  L10
L20       199118 SEA FILE=HCAPLUS ABB=ON  L12
L21        17892 SEA FILE=HCAPLUS ABB=ON  L13
L22         1087 SEA FILE=HCAPLUS ABB=ON  ((L14 OR L15 OR L16 OR L17 OR L18 OR
                 L19 OR L20 OR L21))(L)ELECTRODE?
L23         7860 SEA FILE=REGISTRY ABB=ON  (L1 OR L3 OR L4 OR L6 OR L7 OR L8 OR
                 L10) AND PMS/CI
L24            1 SEA FILE=REGISTRY ABB=ON  POLYANILINE/CN
L25            1 SEA FILE=REGISTRY ABB=ON  POLYPYRROLE/CN
L26            1 SEA FILE=REGISTRY ABB=ON  POLYACETYLENE/CN
L27          743 SEA FILE=REGISTRY ABB=ON  PPH/PCT
L28            1 SEA FILE=REGISTRY ABB=ON  POLYFURAN/CN
L29            0 SEA FILE=REGISTRY ABB=ON  POLYFLURANE
L30            0 SEA FILE=REGISTRY ABB=ON  POLYFLOURENE/CN
L31            1 SEA FILE=REGISTRY ABB=ON  POLYFLUORENE/CN
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L33            1 SEA FILE=REGISTRY ABB=ON  POLYPYRIDINE/CN
L34            1 SEA FILE=REGISTRY ABB=ON  POLYISOTHIANAPHTHENE/CN
L37       402492 SEA FILE=REGISTRY ABB=ON  46.195.39/RID
L38         1169 SEA FILE=REGISTRY ABB=ON  L37 AND PMS/CI
L39            1 SEA FILE=REGISTRY ABB=ON  POLYINDOLE/CN
L41          155 SEA FILE=REGISTRY ABB=ON  POLY(L)AMINO(L)ANTHRAQUINONE
L42          923 SEA FILE=REGISTRY ABB=ON  L5 AND PMS/CI
L43            1 SEA FILE=REGISTRY ABB=ON  POLYANTHRAQUINONE/CN
L44            1 SEA FILE=REGISTRY ABB=ON  POLYBENZOQUINONE/CN
L45            1 SEA FILE=REGISTRY ABB=ON  POLYNAPHTHALENE/CN
L46         3000 SEA FILE=REGISTRY ABB=ON  (L24 OR L25 OR L26 OR L27 OR L28 OR
                 L29 OR L30 OR L31 OR L32 OR L33 OR L34) OR L38 OR L39 OR (L41
                 OR L42 OR L43 OR L44 OR L45)
L47         6880 SEA FILE=HCAPLUS ABB=ON  L23
L48          106 SEA FILE=HCAPLUS ABB=ON  L47(L)ELECTRODE?
L49        28917 SEA FILE=HCAPLUS ABB=ON  L46
L51         2667 SEA FILE=HCAPLUS ABB=ON  L49(L)ELECTRODE?
L52           25 SEA FILE=HCAPLUS ABB=ON  (L22 OR L48) AND L51
L53         7248 SEA FILE=HCAPLUS ABB=ON  (POLYANILINE? OR POLYTHIOPHENE? OR
                 INDOLE TRIMER? OR POLYINDOL? OR POLYPYRROLE? OR POLYACETYLENE?
                 OR POLYPHENYLENE? OR POLYFURAN? OR POLYNAPHTHALEN? OR POLYFLUOR
                 EN? OR POLYPYRIDIN? )(L)ELECTRODE?
L54          199 SEA FILE=HCAPLUS ABB=ON  (POLYTHIENYL? OR POLYPYRIMIDIN? OR
                 POLYINDOL? OR  POLYISOTHIANAPHTH? OR POLYQUINOXALIN? OR
```

ring identifiers for imidazoles, triazoles, pyrazoles & benzimidazole

not the one = indol

proton conducting other components p 2 of spec

p 2 spec's

POLYPYRIDIN? OR POLYPYRIMIDIN? OR POLYAMINOANTHRAQUIN?)(L)ELECTRODE?
L55 5 SEA FILE=HCAPLUS ABB=ON (POLYANTHRAQUINON? OR POLYBENZOQUINON?)(L)ELECTRODE?
L56 32 SEA FILE=HCAPLUS ABB=ON (L22 OR L48) AND ((L53 OR L54 OR L55))
L57 33 SEA FILE=HCAPLUS ABB=ON L52 OR L56

p 2 specs

33 CA references on electrodes with both types of compounds

=> D L57 BIB ABS HITIND HITSTR 1-33

L57 ANSWER 1 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1331156 HCAPLUS
DN 144:54460
TI Fuel cells using gas diffusion electrodes
PA Sartorius AG, Germany
SO Ger. Gebrauchsmusterschrift, 12 pp.
CODEN: GGXXFR
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 202005010403	U1	20051222	DE 2005-202005010403	20050702
PRAI DE 2004-102004032999	IA	20040708		

AB Gas diffusion electrodes with several gas-permeable, elec. conductive layers, which consist at least of a gas diffusion layer and a catalyst layer, whereby the catalyst layer contains at least particles of an elec. conductive substrate, and at least one part of the particles carries an electrocatalyst and/or at least partly loaded with ≥1 porous proton-conductive polymer, and this proton-conductive polymer is applicable at temps. to above the b.p. of water.

IC ICM H01M004-86
ICS H01M004-64; H01M004-88; H01M004-92; H01M008-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT **Polyquinoxalines**
RL: DEV (Device component use); USES (Uses)
(fuel cells using gas diffusion **electrodes**)
IT 127-19-5, Dimethyl acetamide 129-00-0D, Pyrene, aza derivs., polymers 7440-44-0, Carbon, uses **25013-01-8**, **Polypyridine** **82370-43-2**, Polyimidazole 128611-69-8 **190201-51-5**
RL: DEV (Device component use); USES (Uses)
(fuel cells using gas diffusion **electrodes**)
IT **25013-01-8**, **Polypyridine** **82370-43-2**, Polyimidazole **190201-51-5**
RL: DEV (Device component use); USES (Uses)
(fuel cells using gas diffusion **electrodes**)
RN 25013-01-8 HCAPLUS
CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

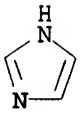
CM 1

CRN 110-86-1
CMF C5 H5 N

RN 82370-43-2 HCAPLUS
CN 1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)

CM 1

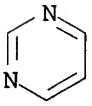
CRN 288-32-4
CMF C3 H4 N2



RN 190201-51-5 HCAPLUS
CN Pyrimidine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 289-95-2
CMF C4 H4 N2



L57 ANSWER 2 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1197806 HCAPLUS
DN 143:449134
TI Reversible electrodeposition optical modulation device with conducting polymer counter electrode
IN Warren, Leslie F.; Tench, D. Morgan
PA Rockwell Scientific Licensing, LLC, USA
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005248825	A1	20051110	US 2004-839060	20040504
PRAI US 2004-839060		20040504		

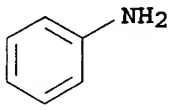
AB Optical modulation devices for controlling the propagation of electromagnetic radiation are described which comprise an optical modulation electrode that is substantially transparent to the radiation; a counter electrode comprising a layer of a conducting polymer; and an electrolyte containing a complexing anion and ions of an electrodepositable metal, the electrolyte being disposed between and in elec. contact with

the optical modulation electrode and the counter electrode, whereby the electrodepositable metal is reversibly electrodeposited on the optical modulation electrode so as to affect propagation of the electromagnetic radiation. The conducting polymer counter electrode does not generate mobile reactive species, and avoids the light blocking associated with grid or dot matrix electrodes involving reversible metal electrodeposition. Application to smart windows is indicated.

IC ICM G02F001-15
INCL 359265000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 52, 72
IT **Polyanilines**
RL: DEV (Device component use); USES (Uses)
(**electrodes**; reversible **electrodeposition** optical modulation devices with conducting polymer counter **electrodes**)
IT 1306-19-0, Cadmium oxide, uses 7439-88-5, Iridium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-15-5, Rhenium, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-57-5, Gold, uses **25233-30-1**, **Polyaniline 25233-30-1D**, **Polyaniline**, derivs. 25233-34-5, **Polythiophene** 25233-34-5D, **Polythiophene**, derivs. **30604-81-0**, **Polypyrrole 30604-81-0D**, **Polypyrrole**, derivs. 50926-11-9, Indium tin oxide 117944-65-7, Indium zinc oxide
RL: DEV (Device component use); USES (Uses)
(**electrodes**; reversible **electrodeposition** optical modulation devices with conducting polymer counter **electrodes**)
IT 7439-92-1, Lead, uses 7439-97-6, Mercury, uses 7440-22-4, Silver, uses 7440-28-0, Thallium, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-43-9, Cadmium, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7440-74-6, Indium, uses 7783-90-6, Silver chloride, uses **65039-09-0** 479500-35-1
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reversible **electrodeposition** optical modulation devices with conducting polymer counter **electrodes**)
IT **25233-30-1**, **Polyaniline 25233-30-1D**, **Polyaniline**, derivs. **30604-81-0**, **Polypyrrole 30604-81-0D**, **Polypyrrole**, derivs.
RL: DEV (Device component use); USES (Uses)
(**electrodes**; reversible **electrodeposition** optical modulation devices with conducting polymer counter **electrodes**)
RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

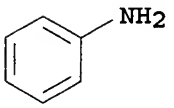
CRN 62-53-3
CMF C6 H7 N



RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

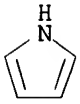
CRN 62-53-3
CMF C6 H7 N



RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

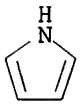
CRN 109-97-7
CMF C4 H5 N



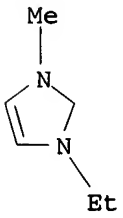
RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7
CMF C4 H5 N



IT **65039-09-0**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); TEM (Technical or engineered material use); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reversible **electrodeposition** optical modulation devices with conducting polymer counter **electrodes**)
RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



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ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L57 ANSWER 3 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:1173920 HCAPLUS
DN 143:443509
TI Dye-sensitized solar cells employing carbon nanomaterials in counter electrodes of photoelectrodes
IN Kubo, Kazuki; Nakao, Yukiyasu; Nobutoki, Eiji
PA Mitsubishi Electric Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2005310722	A2	20051104	JP 2004-130137	20040426
PRAI	JP 2004-130137		20040426		

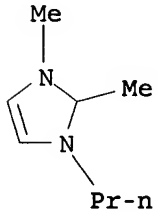
AB The soar cells comprise dye-carrying semiconductor photoelectrodes, (solid/gelated) charge-transfer electrolyte layers, and counter electrodes comprising electrode layers containing carbon nanomaterials carrying catalysts. The nanomaterials may be carbon nanohorns or nanocones. The solar cells achieve high energy conversion efficiency.
IC ICM H01M014-00
ICS H01L031-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 7553-56-2, Iodine, uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide **218151-78-1**
RL: DEV (Device component use); USES (Uses)
(electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter **electrode** of photoelectrode)
IT **30604-81-0P, Polypyrrole**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter **electrode** of photoelectrode)
IT 25322-68-3, Polyethylene glycol **178631-05-5**, 1-Methyl-3-hexylimidazolium iodide
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gelating agent, electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter

electrode of photoelectrode)

IT **218151-78-1**
RL: DEV (Device component use); USES (Uses)
(electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter **electrode** of photoelectrode)

RN 218151-78-1 HCAPLUS

CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, iodide (9CI) (CA INDEX NAME)



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

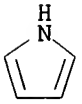
IT **30604-81-0P, Polypyrrole**
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter **electrode** of photoelectrode)

RN 30604-81-0 HCAPLUS

CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

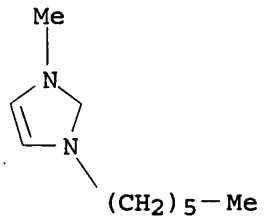
CRN 109-97-7
CMF C4 H5 N



IT **178631-05-5**, 1-Methyl-3-hexylimidazolium iodide
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gelating agent, electrolyte component; dye-sensitized solar cell employing catalyst-carrying carbon nanomaterials in counter **electrode** of photoelectrode)

RN 178631-05-5 HCAPLUS

CN 1H-Imidazolium, 1-hexyl-3-methyl-, iodide (9CI) (CA INDEX NAME)



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ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L57 ANSWER 4 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:962573 HCAPLUS
DN 143:251017
TI High-performance membrane electrode unit for use in fuel cells
IN Schmidt, Thomas; Uensal, Oemer; Weber, Mathias; Kundler, Isabel; Calundann, Gordon; Baurmeister, Jochen
PA Pemeas G.m.b.H., Germany
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005081351	A2	20050901	WO 2005-EP1761	20050220
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
	RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	DE 102004008628	A1	20050908	DE 2004-102004008628	20040221
PRAI	DE 2004-102004008628 A		20040221		

AB The invention relates to a membrane electrode unit comprising a polymer membrane doped with a mineral acid, and two electrodes, the unit being characterized in that the polymer membrane comprises at least one polymer containing at least one nitrogen atom, and at least one electrode comprises a catalyst formed from at least one precious metal and at least one base metal according to the electrochem. series.
IC ICM H01M008-10
ICS H01M004-86; H01M004-88; H01M004-92
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT **Polyquinoxalines**
RL: DEV (Device component use); USES (Uses)
(high-performance membrane **electrode** unit for use in fuel cells)
IT 91-95-2, 3,3',4,4'-Tetraaminobiphenyl 463-79-6D, Carbonic acid, diamino

derivative, aromatic and/or heteroarom. compound 463-79-6D, Carbonic acid, heteroarom. compound 3204-61-3, 1,2,4,5-Tetraaminobenzene 9010-39-3, Polytriazole **25013-01-8**, **Polypyridine** **25734-65-0**, Poly(2,2'-m-phenylene)-5,5'-bisbenzimidazole 38926-45-3, 2,3,5,6-Tetraaminopyridine **82370-43-2**, Polyimidazole **105809-46-9**, Polypyrazole 128611-69-8 **190201-51-5** 850811-17-5 **863495-63-0**
RL: DEV (Device component use); USES (Uses)
(high-performance membrane **electrode** unit for use in fuel cells)

IT 88-99-3, Phthalic acid, uses 89-05-4, 1,2,4,5-Benzenetetracarboxylic acid 99-31-0, 5-Aminoisophthalic acid 100-21-0, Terephthalic acid, uses 100-31-2, 4,4'-Stilbenedicarboxylic acid 121-91-5, Isophthalic acid, uses 122-05-4, 2,5-Pyrazinedicarboxylic acid 126-00-1, Diphenolic acid 128-97-2, 1,4,5,8-Naphthalenetetracarboxylic acid 499-80-9, 2,4-Pyridinedicarboxylic acid 499-81-0, 3,5-Pyridinedicarboxylic acid 499-83-2, 2,6-Pyridinedicarboxylic acid 528-44-9, Trimellitic acid 536-20-9, 2,4,6-Pyridinetricarboxylic acid 554-95-0, Trimesic acid 605-70-9, 1,4-Naphthalenedicarboxylic acid 610-92-4, 2,5-Dihydroxyterephthalic acid 618-83-7, 5-Hydroxyisophthalic acid 636-46-4, 4-Hydroxyisophthalic acid 636-94-2, 2-Hydroxyterephthalic acid 652-03-9, Tetrafluorophthalic acid 652-36-8, Tetrafluoroterephthalic acid 787-70-2, Biphenyl-4,4'-dicarboxylic acid 835-58-5, 4-TriFluoromethylphthalic acid 964-68-1, Benzophenone-4,4'-dicarboxylic acid 1141-38-4, 2,6-Naphthalenedicarboxylic acid 1147-65-5, (2-Carboxyphenyl)iminodiacetic acid 1171-47-7, 2,2-Bis(4-carboxyphenyl)hexafluoropropane 1551-39-9, Tetrafluoroisophthalic acid 1583-66-0, 5-Fluoroisophthalic acid 1583-67-1, 3-Fluorophthalic acid 2089-89-6, 2,7-Naphthalenedicarboxylic acid 2215-89-6, Diphenyl ether-4,4'-dicarboxylic acid 2449-35-6, Diphenylsulfone-4,4'-dicarboxylic acid 2479-49-4, Benzophenonetetracarboxylic acid **3112-31-0**, 3,5-Pyrazoledicarboxylic acid 3906-87-4 4371-28-2, 3,5,3',5'-Biphenyltetracarboxylic acid 4861-72-7, 5-N,N-Dimethylaminoisophthalic acid 5167-76-0 7315-96-0, 1,5-Naphthalenedicarboxylic acid **10351-75-4**, Benzimidazole-5,6-dicarboxylic acid 19675-63-9, 4-Carboxycinnamic acid 22803-05-0, 3,3',4,4'-Biphenyltetracarboxylic acid 22928-28-5 36966-22-0 37645-41-3, 2,4-Pyrimidinedicarboxylic acid 39155-64-1, 1,2,5,6-Naphthalenetetracarboxylic acid 59195-28-7 82784-82-5, 3,4-Dihydroxyphthalic acid 603993-70-0 677010-19-4, 5-N,N-Diethylaminoisophthalic acid 677010-20-7 863495-62-9
RL: TEM (Technical or engineered material use); USES (Uses)
(high-performance membrane **electrode** unit for use in fuel cells)

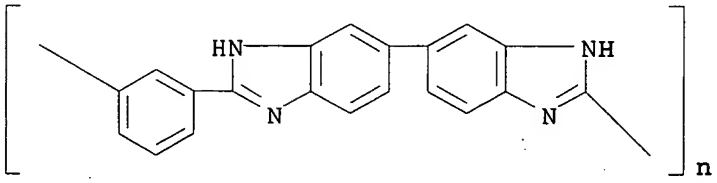
IT **25013-01-8**, **Polypyridine** **25734-65-0**, Poly(2,2'-m-phenylene)-5,5'-bisbenzimidazole **82370-43-2**, Polyimidazole **105809-46-9**, Polypyrazole **190201-51-5** **863495-63-0**
RL: DEV (Device component use); USES (Uses)
(high-performance membrane **electrode** unit for use in fuel cells)

RN 25013-01-8 HCAPLUS
CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 110-86-1
CMF C5 H5 N

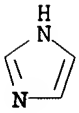
RN 25734-65-0 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,3-phenylene) (9CI) (CA INDEX NAME)



RN 82370-43-2 HCAPLUS
CN 1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)

CM 1

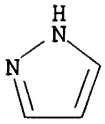
CRN 288-32-4
CMF C3 H4 N2



RN 105809-46-9 HCAPLUS
CN 1H-Pyrazole, homopolymer (9CI) (CA INDEX NAME)

CM 1

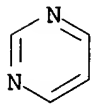
CRN 288-13-1
CMF C3 H4 N2



RN 190201-51-5 HCAPLUS
CN Pyrimidine, homopolymer (9CI) (CA INDEX NAME)

CM 1

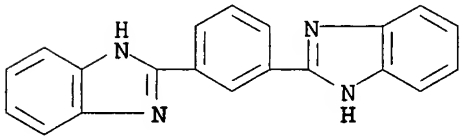
CRN 289-95-2
CMF C4 H4 N2



RN 863495-63-0 HCAPLUS
CN 1H-Benzimidazole, 2,2'-(1,3-phenylene)bis-, polymer with 2,2'-(2,5-pyridinediyl)bis[1H-benzimidazole] (9CI) (CA INDEX NAME)

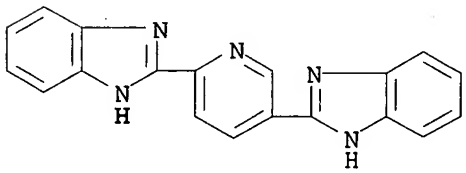
CM 1

CRN 29914-81-6
CMF C20 H14 N4

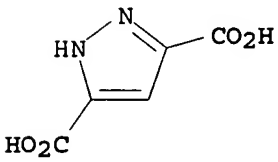


CM 2

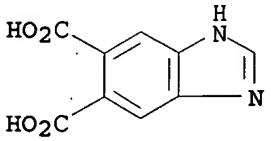
CRN 19517-07-8
CMF C19 H13 N5



IT **3112-31-0**, 3,5-Pyrazoledicarboxylic acid **10351-75-4**, Benzimidazole-5,6-dicarboxylic acid
RL: TEM (Technical or engineered material use); USES (Uses)
(high-performance membrane **electrode** unit for use in fuel cells)
RN 3112-31-0 HCAPLUS
CN 1H-Pyrazole-3,5-dicarboxylic acid (9CI) (CA INDEX NAME)



RN 10351-75-4 HCAPLUS
CN 1H-Benzimidazole-5,6-dicarboxylic acid (9CI) (CA INDEX NAME)

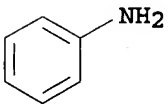


L57 ANSWER 5 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:812448 HCAPLUS
DN 143:349813
TI Hybrid materials approach in the design of electrodes and electrolytes for energy storage and conversion
AU Cuentas-Gallegos, Karina; Lira-Cantu, Monica; Casan-Pastor, Nieves; Asensio, Juan A.; Gomez-Romero, Pedro
CS Materials Science Institute of Barcelona (CSIC), Bellaterra, 08193, Spain
SO Materials Research Society Symposium Proceedings (2005), Volume Date 2004, 847(Organic/Inorganic Hybrid Materials--2004), 431-438
CODEN: MRSPDH; ISSN: 0272-9172
PB Materials Research Society
DT Journal; General Review
LA English
AB A review. The integration of electro-ionically active inorg. species in polymer matrixes allows for the design of either electrode or electrolyte materials depending on the conducting or insulating properties of the polymer used. Conducting polymers can be used as the basis for a variety of hybrid electrode systems, whereas other polymers such as polybenzimidazoles were used as electrolyte membranes by themselves or in combination with inorg. solid acids. The authors will discuss the general approach of hybrid design with this in mind and specifically the authors will describe the recent results on the use of polyoxometalate-containing hybrids in energy storage and conversion devices. In this respect the authors have worked in the laboratory on electrochem. supercapacitors and fuel cells but emphasis should be made on the broader potential fields of application of this type of materials.
CC 52-0 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **25233-30-1P, Polyaniline**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(blend with phosphomolybdic acid; hybrid materials approach in design of **electrodes** and electrolytes for energy storage and conversion)
IT **32109-42-5P**, Poly(2,5-benzimidazole)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(composite with polyphosphoric acid, phosphoric acid-doped; hybrid materials approach in design of **electrodes** and electrolytes for energy storage and conversion)
IT 12026-57-2, Phosphomolybdic acid (H3PMo12O40)
RL: DEV (Device component use); USES (Uses)
(composites with **polyaniline**; hybrid materials approach in design of **electrodes** and electrolytes for energy storage and conversion)
IT **25233-30-1P, Polyaniline**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(blend with phosphomolybdic acid; hybrid materials approach in design of **electrodes** and electrolytes for energy storage and conversion)
RN 25233-30-1 HCAPLUS

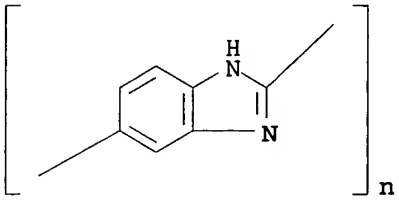
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3
CMF C6 H7 N



IT **32109-42-5P**, Poly(2,5-benzimidazole)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(composite with polyphosphoric acid, phosphoric acid-doped; hybrid materials approach in design of **electrodes** and electrolytes for energy storage and conversion)
RN 32109-42-5 HCAPLUS
CN Poly(1H-benzimidazole-2,5-diyl) (9CI) (CA INDEX NAME)



RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

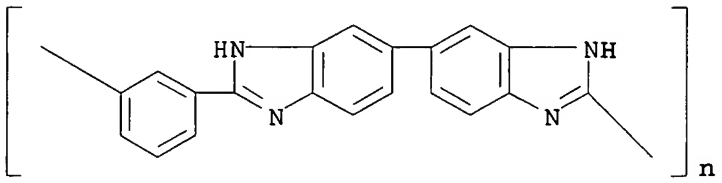
L57 ANSWER 6 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:612368 HCAPLUS
DN 143:116542
TI Proton-conducting membranes based on polyazoles and use thereof
IN Uensal, Oemer; Leister, Ursula; Schlegel, Melanie
PA Pemeas G.m.b.H., Germany
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005063852	A1	20050714	WO 2004-EP14831	20041230

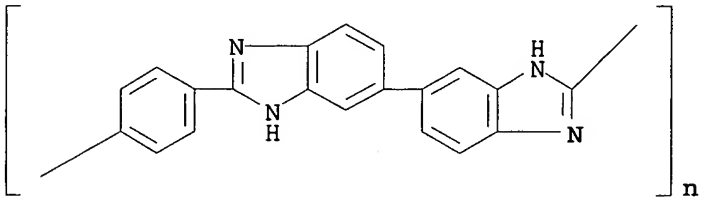
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML,

MR, NE, SN, TD, TG
DE 10361833 A1 20050804 DE 2003-10361833 20031230
PRAI DE 2003-10361833 A 20031230
OS MARPAT 143:116542
AB Proton-conducting membranes based on polyazoles optionally having heterocyclic side chains with increased conductivity and decreased flash over for fuel cells are manufactured by dissolving or dispersing ≥1 aromatic tetramine and ≥1 aromatic carboxylic acid or ester having ≥2 carboxylic acid groups or a mixture of ≥1 aromatic and(or) heterocyclic diaminocarboxylic acids in organic phosphonic acid anhydrides, coating the dispersion or solution on a support or an electrode, and heating at ≤350°.
IC ICM C08G073-18
ICS B01D067-00; B01D071-64
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 52
IT Polybenzimidazoles
Polybenzoxazoles
Polyoxadiazoles
Polyquinoxalines
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(proton-conducting membranes based on polyazoles prepared from solns. of monomers in phosphonic acid anhydrides on supports or **electrodes** for fuel cells)
IT 100-43-6D, 4-Vinylpyridine, polyazole derivs. 100-69-6D, 2-Vinylpyridine, polyazole derivs. 25584-58-1 **25734-65-0** 26101-19-9 27233-57-4 **28576-59-2** **29383-23-1D**, Vinylimidazole, polyazole derivs. 29692-96-4 31851-25-9 32075-68-6 **32109-42-5**, Poly(1H-benzimidazole-2,5-diyl) 39151-97-8 42209-07-4 51324-98-2D, Poly(2,6-pyridinediyl), polyazole derivs. **54674-37-2**, Poly(2,5-pyrimidinediyl) 55861-56-8 56411-22-4 56713-21-4 **96926-85-1** 96937-25-6 96937-27-8 97702-63-1D, Poly(3,5-pyridinediyl), polyazole derivs. 111404-15-0 111404-18-3 111404-83-2 111404-85-4 **132937-69-0** 132955-49-8 **240799-37-5** **268567-69-7** 367276-48-0 368871-22-1 **471256-97-0** **471256-98-1** 471256-99-2 **471257-00-8** 471257-01-9 471257-02-0 **471257-03-1** **471257-04-2** 471257-05-3 471257-06-4 **471257-07-5** 471257-08-6 **471257-09-7** 471257-10-0 471257-11-1 471257-12-2 472960-34-2 675130-04-8 832113-32-3 **857855-79-9D**, Poly(4,6-pyrimidinediyl), polyazole derivs.
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(proton-conducting membranes based on polyazoles prepared from solns. of monomers in phosphonic acid anhydrides on supports or **electrodes** for fuel cells)
IT **25734-65-0** **28576-59-2** **29383-23-1D**, Vinylimidazole, polyazole derivs. **32109-42-5**, Poly(1H-benzimidazole-2,5-diyl) **54674-37-2**, Poly(2,5-pyrimidinediyl) **96926-85-1** **132937-69-0** **240799-37-5** **268567-69-7** **471256-97-0** **471256-98-1** **471257-00-8** **471257-03-1** **471257-04-2** **471257-07-5** **471257-09-7** **857855-79-9D**, Poly(4,6-pyrimidinediyl), polyazole derivs.
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(proton-conducting membranes based on polyazoles prepared from solns. of monomers in phosphonic acid anhydrides on supports or **electrodes** for fuel cells)

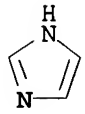
RN 25734-65-0 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,3-phenylene) (9CI) (CA INDEX NAME)

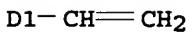


RN 28576-59-2 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,4-phenylene) (9CI) (CA INDEX NAME)

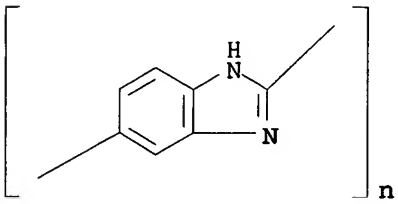


RN 29383-23-1 HCAPLUS
CN 1H-Imidazole, ethenyl- (9CI) (CA INDEX NAME)

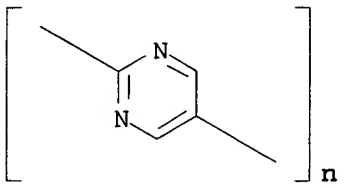




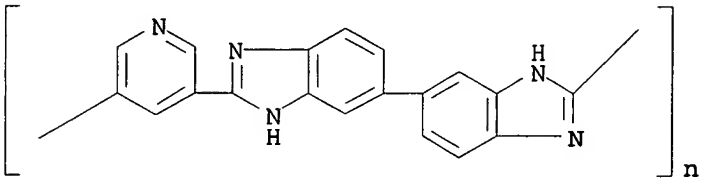
RN 32109-42-5 HCAPLUS
CN Poly(1H-benzimidazole-2,5-diyl) (9CI) (CA INDEX NAME)



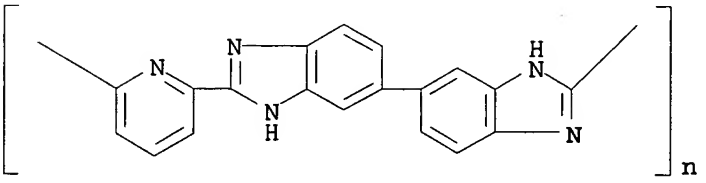
RN 54674-37-2 HCAPLUS
CN Poly(2,5-pyrimidinediyl) (9CI) (CA INDEX NAME)



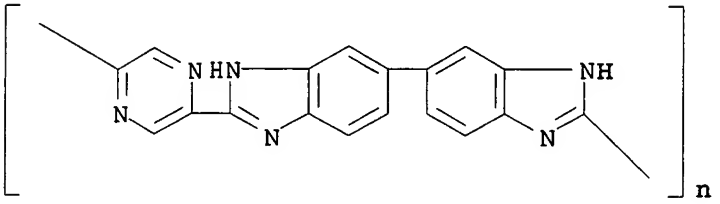
RN 96926-85-1 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-3,5-pyridinediyl) (9CI) (CA INDEX NAME)



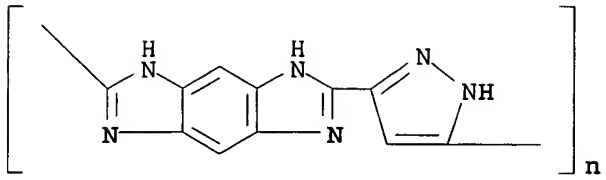
RN 132937-69-0 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-2,6-pyridinediyl) (9CI) (CA INDEX NAME)



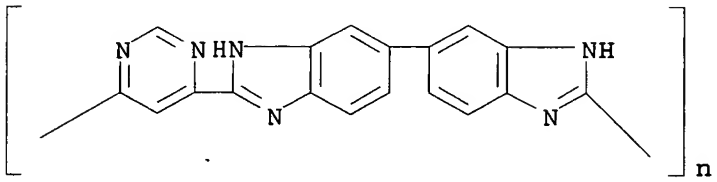
RN 240799-37-5 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-2,5-pyrazinediyl) (9CI) (CA INDEX NAME)



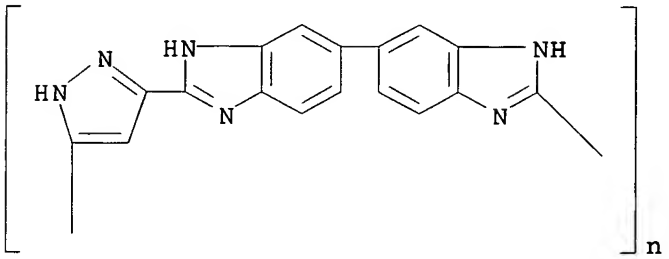
RN 268567-69-7 HCAPLUS
CN Poly[(1,5-dihydrobenzo[1,2-d:4,5-d']diimidazole-2,6-diyl)-1H-pyrazole-3,5-diyl] (9CI) (CA INDEX NAME)



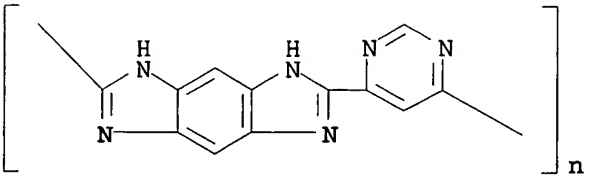
RN 471256-97-0 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-4,6-pyrimidinediyl) (9CI) (CA INDEX NAME)



RN 471256-98-1 HCAPLUS
CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1H-pyrazole-3,5-diyl) (9CI) (CA INDEX NAME)



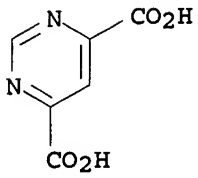
RN 471257-00-8 HCAPLUS
CN Poly[(1,5-dihydrobenzo[1,2-d:4,5-d']diimidazole-2,6-diyl)-4,6-pyrimidinediyl] (9CI) (CA INDEX NAME)



RN 471257-03-1 HCAPLUS
CN 4,6-Pyrimidinedicarboxylic acid, polymer with [1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

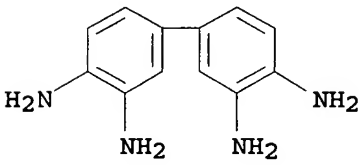
CM 1

CRN 16490-02-1
CMF C6 H4 N2 O4



CM 2

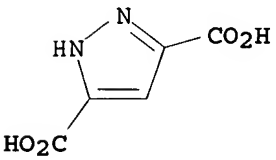
CRN 91-95-2
CMF C12 H14 N4



RN 471257-04-2 HCAPLUS
CN 1H-Pyrazole-3,5-dicarboxylic acid, polymer with [1,1'-biphenyl]-3,3',4,4'-tetramine (9CI) (CA INDEX NAME)

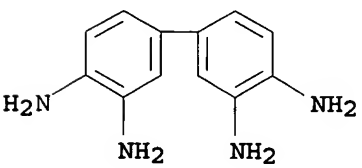
CM 1

CRN 3112-31-0
CMF C5 H4 N2 O4



CM 2

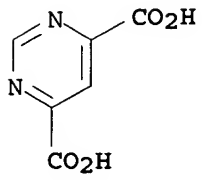
CRN 91-95-2
CMF C12 H14 N4



RN 471257-07-5 HCAPLUS
CN 4,6-Pyrimidinedicarboxylic acid, polymer with 1,2,4,5-benzenetetramine (9CI) (CA INDEX NAME)

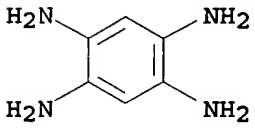
CM 1

CRN 16490-02-1
CMF C6 H4 N2 O4



CM 2

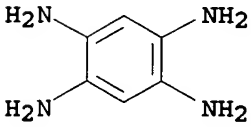
CRN 3204-61-3
CMF C6 H10 N4



RN 471257-09-7 HCAPLUS
CN 1H-Pyrazole-3,5-dicarboxylic acid, polymer with 1,2,4,5-benzenetetramine (9CI) (CA INDEX NAME)

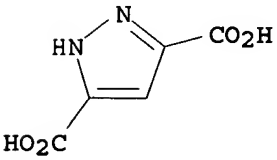
CM 1

CRN 3204-61-3
CMF C6 H10 N4

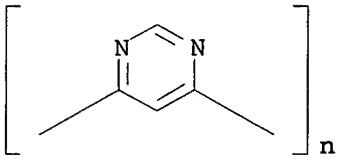


CM 2

CRN 3112-31-0
CMF C5 H4 N2 O4



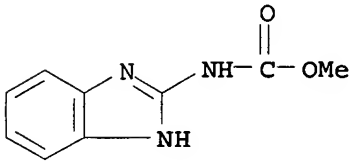
RN 857855-79-9 HCAPLUS
CN Poly(4,6-pyrimidinediyl) (9CI) (CA INDEX NAME)



RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 7 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:444975 HCAPLUS
DN 143:207531
TI Utilisation of **polypyrrole** modified **electrode** for the determination of pesticides
AU Manisankar, Paramasivam; Selvanathan, Ganeshan; Vedhi, Chinnapyian
CS Department of Chemistry, Periyar University, Salem, Tamil Nadu, 636011, India
SO International Journal of Environmental Analytical Chemistry (2005), 85(6), 409-422
CODEN: IJEAA3; ISSN: 0306-7319
PB Taylor & Francis Ltd.
DT Journal
LA English
AB Cyclic voltammetric studies of isoproturon and carbendazim using **polypyrrole** modified glassy carbon **electrode** were carried out. The **electrode** and reaction conditions, which yielded maximum current signal, were selected for the development of stripping voltammetric procedure for the determination of the pesticides. The oxidation peak around 1.3 V, obtained for isoproturon and carbendazim while employing **polypyrrole** modified **electrode**, showed maximum current response. This peak was chosen for stripping anal. using square wave mode. The exptl. parameters were optimized and the calibration plot was obtained. The LOD was 0.5 ng mL-1 for isoproturon and 5 ng mL-1 for carbendazim. The relative standard deviation for 5 identical measurements was 2.81% and 3.33% for isoproturon and carbendazim, resp. The applicability of the method was verified by determining the pesticides in spiked soil and water samples.
CC 5-1 (Agrochemical Bioregulators)
Section cross-reference(s): 80
ST **polypyrrole** modified **electrode** pesticide detn cyclic voltammetry
IT Waters
(anal.; **polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)
IT Cyclic voltammetry
Pesticides
Soil analysis
(**polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)
IT **10605-21-7**, Carbendazim 34123-59-6, Isoproturon
RL: ANT (Analyte); ANST (Analytical study)
(**polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)

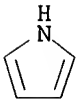
IT **30604-81-0, Polypyrrole**
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)
IT **10605-21-7**, Carbendazim
RL: ANT (Analyte); ANST (Analytical study)
(**polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)
RN 10605-21-7 HCAPLUS
CN Carbamic acid, 1H-benzimidazol-2-yl-, methyl ester (9CI) (CA INDEX NAME)



IT **30604-81-0, Polypyrrole**
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(**polypyrrole**-modified **electrode** for pesticide determination by cyclic voltammetry)
RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7
CMF C4 H5 N



RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 8 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:438618 HCAPLUS
DN 143:127185
TI Ferrocene-functionalized cationic polythiophene for the label-free electrochemical detection of DNA
AU Le Floch, Fabien; Ho, Hoang-Anh; Harding-Lepage, Patricia; Bedard, Melanie; Neagu-Plesu, Rodica; Leclerc, Mario
CS Canada Research Chair in Electroactive and Photoactive Polymers and CERSIM Departement de Chimie, Universite Laval, Quebec City, QC, PQ G1K 7P4, Can.
SO Advanced Materials (Weinheim, Germany) (2005), 17(10), 1251-1254
CODEN: ADVMEW; ISSN: 0935-9648
PB Wiley-VCH Verlag GmbH & Co. KGaA
DT Journal
LA English
AB Specific, sensitive detection of unlabeled target DNA at room temperature is reported. A new, water-soluble, ferrocene-functionalized, cationic polythiophene is synthesized. This conducting polymer, used together with gold-bound peptide nucleic acid (PNA) probes, makes, by a simple

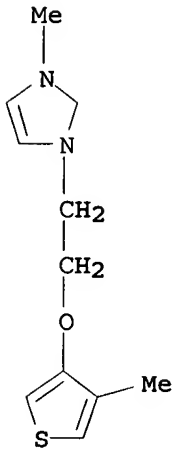
electrostatic method, DNA detection possible.
CC 3-1 (Biochemical Genetics)
IT Nucleic acid hybridization
(cDNA-peptide nucleic acid; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT DNA
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT Peptide nucleic acids
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(peptide nucleic acid; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT **Electrodes**
(voltammetric, peptide nucleic acid-coated gold; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT Biosensors
(voltammetric; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT **857887-54-8**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(cationic **polythiophene**; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes** in relation to)
IT 858120-90-8P
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(ferrocene-functionalized cationic **polythiophene**; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT 7440-57-5, Gold, biological studies
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); DEV (Device component use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(peptide nucleic acid-coated; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with peptide nucleic acid probe-coated gold **electrodes**)
IT **857887-54-8**
RL: ARG (Analytical reagent use); BUU (Biological use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(cationic **polythiophene**; ferrocene-functionalized cationic **polythiophene** for label-free electrochem. detection of DNA with

peptide nucleic acid probe-coated gold **electrodes** in relation to)

RN 857887-54-8 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-[2-[(4-methyl-3-thienyl)oxy]ethyl]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 719995-09-2
CMF C11 H15 N2 O S



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 9 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:347302 HCAPLUS
DN 142:402470
TI Composite electrodes, electrolytes, and redox capacitors
IN Tateishi, Kazuyuki; Murakami, Mutsuaki; Yamagishi, Hideo; Furutani, Hiroyuki; Tachibana, Masamitsu
PA Kaneka Corporation, Japan
SO PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2005036573	A1	20050421	WO 2004-JP14140	20040921

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI JP 2003-351295 A 20031009

AB Disclosed are an electrode composite body using a conductive polymer film wherein the doping and dedoping capacitance of the conductive polymer are improved, an electrolyte, and a redox capacitor comprising those. Specifically disclosed are (1) an electrode composite body for redox capacitors which includes a conductive polymer and an electrode, (2) an electrode composite body for redox capacitors which includes a conductive polymer film and an electrode, (3) an electrolyte for redox capacitors which essentially contains an ionic liquid, (4) a redox capacitor composed of an electrolyte essentially containing an ionic liquid and an electrode composite body for redox capacitors, and (5) a composite body which is characterized in that the anion content in the ionic liquid is the same element as a part of the dopant of the conductive polymer.

IC ICM H01G009-058
ICS H01G009-038

CC 76-10 (Electric Phenomena)

IT **143314-16-3P**, 1-Ethyl-3-methylimidazolium tetrafluoroborate
174501-65-6P, 1-Butyl-3-methylimidazolium tetrafluoroborate
328090-25-1P
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(composite **electrodes** and electrolytes and redox capacitors)

IT 25233-34-5, **Polythiophene 30604-81-0**,
Polypyrrole
RL: PRP (Properties)
(conductor film; composite **electrodes** and electrolytes and redox capacitors)

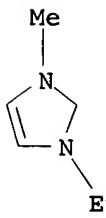
IT **143314-16-3P**, 1-Ethyl-3-methylimidazolium tetrafluoroborate
174501-65-6P, 1-Butyl-3-methylimidazolium tetrafluoroborate
328090-25-1P
RL: PNU (Preparation, unclassified); PRP (Properties); PREP (Preparation)
(composite **electrodes** and electrolytes and redox capacitors)

RN 143314-16-3 HCAPLUS

CN 1H-Imidazolium, 1-ethyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

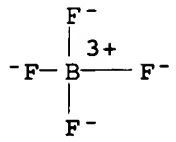
CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

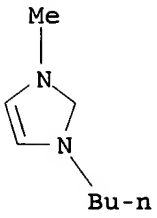
CRN 14874-70-5
CMF B F4
CCI CCS



RN 174501-65-6 HCAPLUS
CN 1H-Imidazolium, 1-butyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

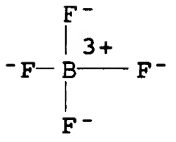
CRN 80432-08-2
CMF C8 H15 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

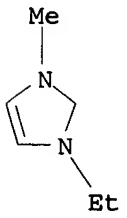
CRN 14874-70-5
CMF B F4
CCI CCS



RN 328090-25-1 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 4-methylbenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

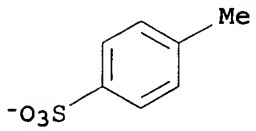
CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

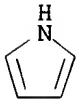
CRN 16722-51-3
CMF C7 H7 O3 S



IT **30604-81-0, Polypyrrole**
RL: PRP (Properties)
(conductor film; composite **electrodes** and electrolytes and redox capacitors)
RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7
CMF C4 H5 N



RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 10 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2005:293697 HCAPLUS
DN 143:450596
TI Electrochemical Actuator Devices Based on Polyaniline Yarns and Ionic Liquid Electrolytes
AU Lu, Wen; Norris, Ian D.; Mattes, Benjamin R.
CS Santa Fe Science and Technology, Santa Fe, NM, 87507, USA
SO Australian Journal of Chemistry (2005), 58(4), 263-269
CODEN: AJCHAS; ISSN: 0004-9425
PB CSIRO Publishing
DT Journal
LA English

AB Conducting polymer electrochem. linear actuators were developed and fabricated from ionic liqs. (as electrolytes) and **polyaniline** yarns and hollow fibers (as **electrode** materials), e.g., Panion triflate and 1-butyl-3-Me imidazolium tetrafluoroborate [bmim]BF4. With a yarn-in-fiber configuration, these actuators were simple to fabricate and allowed two-**electrode** operation without a reference **electrode** . Typical electromech. actuation behavior of expansion, with force decrease, and contraction, with force increase, during charge injection and removal was realized for these actuators. Stress generation of these actuators was 0.420.85 MPa, which exceeds that of skeletal muscle (0.1 - 0.5 MPa). Practical application of the actuators was demonstrated by using electrochem. actuation of a yarn-in-fiber actuator to drive a cantilever object. Importantly, this yarn-in-fiber configuration would allow the combination of an appropriate number of yarns as the actuation **electrode** to accomplish the mech. task, depending on the weight of the object.

CC 76-14 (Electric Phenomena)
Section cross-reference(s): 36, 72

ST **polyaniline** yarn **electrode** ionic liq electrolyte electromech actuator

IT **Electrodes**
(actuator; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Synthetic polymeric fibers, uses
RL: DEV (Device component use); USES (Uses)
(aniline, triflate-containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Electrolytes
(electrochem. actuator; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Redox reaction
(electrochem., cyclic; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Actuators
(electrochem.; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT **Polyanilines**
RL: DEV (Device component use); USES (Uses)
(fiber, triflate-containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Fibers
RL: DEV (Device component use); USES (Uses)
(hollow; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Contraction (mechanical)
Electromechanical effect
Expansion
Ionic liquids
Yarns
(operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT Conducting polymers
(**polyaniline**, triflate containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline**

electrodes and ionic liquid electrolyte)

IT **Polyanilines**
RL: DEV (Device component use); USES (Uses)
(triflate containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT 1493-13-6, Triflic acid
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT 25014-41-9, Polyacrylonitrile
RL: DEV (Device component use); USES (Uses)
(nanofiber, separator; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT **174501-65-6**, 1-Butyl-3-methyl imidazolium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

IT **25233-30-1, Polyaniline**
RL: DEV (Device component use); USES (Uses)
(triflate containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

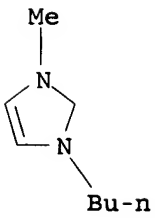
IT **174501-65-6**, 1-Butyl-3-methyl imidazolium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)

RN 174501-65-6 HCAPLUS

CN 1H-Imidazolium, 1-butyl-3-methyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

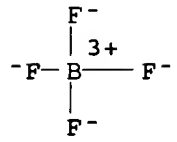
CRN 80432-08-2
CMF C8 H15 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

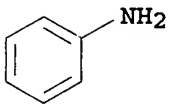
CRN 14874-70-5
CMF B F4
CCI CCS



IT **25233-30-1, Polyaniline**
RL: DEV (Device component use); USES (Uses)
(triflate containing; operation of electrochem. actuator devices with yarn-in-fiber **polyaniline electrodes** and ionic liquid electrolyte)
RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 62-53-3
CMF C6 H7 N



RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 11 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:964547 HCAPLUS
DN 141:417632
TI Reversible electro-optic device employing aprotic molten salts and method
IN Warner, Benjamin P.; McCleskey, T. Mark; Burrell, Anthony K.; Hall, Simon B.
PA The Regents of The University of California, USA
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

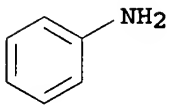
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004223207	A1	20041111	US 2003-430780	20030505
US 6862125	B2	20050301		
WO 2004099863	A2	20041118	WO 2004-US7643	20040311
WO 2004099863	A3	20050414		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2004227983 A1 20041118 US 2004-831572 20040422
PRAI US 2003-430780 A 20030505
OS MARPAT 141:417632
AB Reversible electrooptical devices (e.g., reversible electrodeposited mirrors) that comprise a chamber and, as the medium of variable transmittance to light, a solution of an aprotic molten salt, ≥1 soluble metal-containing species comprising metal capable of being electrodeposited, and ≥1 anodic compound capable of being oxidized are described in which the solution comprises anions which do not bind strongly enough to the metal-containing species to form metal complexes with the anions. Preferably, the aprotic molten salt is liquid at room temperature and includes lithium and/or quaternary ammonium cations, and anions selected from trifluoromethylsulfonate, bis(trifluoromethylsulfonyl)imide, bis(perfluoroethylsulfonyl)imide, and tris(trifluoromethylsulfonyl)methide . The devices may also employ UV stabilizers and stiffening agents (e.g., polymers) and thixotropic agents. The molten salt solution may include an aprotic organic cosolvent with a b.p. >150°.
IC ICM G02F001-15
INCL 359265000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 72
IT Conducting polymers
(**polythiophenes**; reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
IT **Polyanilines**
Quaternary ammonium compounds, uses
RL: DEV (Device component use); USES (Uses)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
IT 108-32-7, Propylene carbonate 306-94-5, Perfluorodecalin 307-45-9, Perfluorodecane. 872-50-4, uses 1312-43-2, Indium oxide 1313-96-8, Niobium oxide 1314-62-1, Vanadium pentoxide, uses 11098-99-0, Molybdenum oxide 11104-61-3, Cobalt oxide 12240-15-2, Prussian blue 12645-46-4, Iridium oxide **25233-30-1**, **Polyaniline**
RL: DEV (Device component use); USES (Uses)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
IT **174899-83-3P** 223437-11-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
IT 1313-99-1, Nickel oxide, reactions **79917-90-1** **85100-77-2** 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 93457-69-3 479500-35-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
IT **25233-30-1**, **Polyaniline**
RL: DEV (Device component use); USES (Uses)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

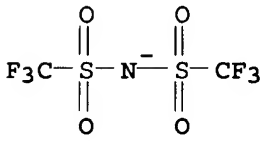
CRN 62-53-3
CMF C6 H7 N



IT **174899-83-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
RN 174899-83-3 HCAPLUS
CN 1H-Imidazolium, 1-butyl-3-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

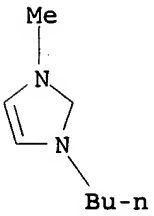
CM 1

CRN 98837-98-0
CMF C2 F6 N O4 S2

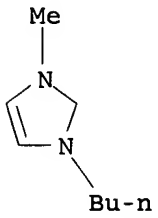


CM 2

CRN 80432-08-2
CMF C8 H15 N2

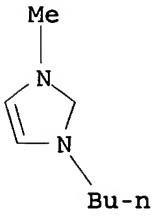


ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
IT **79917-90-1 85100-77-2**
RL: RCT (Reactant); RACT (Reactant or reagent)
(reversible **electrodeposition**-based electrooptical devices employing aprotic molten salts)
RN 79917-90-1 HCAPLUS
CN 1H-Imidazolium, 1-butyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl^-

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RN 85100-77-2 HCAPLUS
CN 1H-Imidazolium, 1-butyl-3-methyl-, bromide (9CI) (CA INDEX NAME)



● Br^-

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 12 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:605443 HCAPLUS
DN 141:143194
TI Method of fabrication of membrane electrode unit for polymer electrolyte fuel cells
IN Melzner, Dieter; Reiche, Annette; Maehr, Ulrich; Kiel, Suzana
PA Sartorius Ag, Germany
SO Ger. Offen., 12 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 10301810	A1	20040729	DE 2003-10301810	20030120
	WO 2004066428	A2	20040805	WO 2003-EP14623	20031219
	WO 2004066428	A3	20050818		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN,

TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

EP 1593172 A2 20051109 EP 2003-815370 20031219
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

DE 202004000365 U1 20040422 DE 2004-202004000365 20040113

PRAI DE 2003-10301810 A 20030120

WO 2003-EP14623 W 20031219

AB The invention concerns a membrane-electrode unit and polymer electrolyte fuel cell using the same for operating temperature ≤250°, as well as method of fabrication of the membrane. Membrane-electrode units of the polymer electrolyte fuel cells consist ≥2 laminar gas distribution electrodes and a sandwich-like polymer membrane (provided between the electrodes) with at least a basic polymer as well as a dopant, with which the gas distribution electrodes are in such a manner loaded that they represent a dopant reservoir for the polymer membrane, whereby the polymer membrane is proton-conductively and firmly tied up to the gas distribution electrodes over the dopant after the effect of pressure and temperature In the doped condition, it shows a conductivity of at least 0.1 S/m at a temperature of <25°. The invention is applicable directly for stationary and mobile power generation from chemical energy.

IC ICM H01M008-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Polybenzimidazoles
Polybenzothiazoles
Polybenzoxazoles
Polyoxadiazoles
Polyquinoxalines
RL: DEV (Device component use); USES (Uses)
(method of fabrication of membrane **electrode** unit for polymer electrolyte fuel cells)

IT 129-00-0D, Pyrene, tetraaza derivs., polymers 298-07-7, Bis(2-ethylhexyl) phosphate 838-85-7, Diphenylphosphate **25013-01-8**, **Polypyridine 82370-43-2**, Polyimidazole 128611-69-8, 1,3,4-Thiadiazole homopolymer **190201-51-5**, Pyrimidine, homopolymer
RL: DEV (Device component use); USES (Uses)
(method of fabrication of membrane **electrode** unit for polymer electrolyte fuel cells)

IT **25013-01-8**, **Polypyridine 82370-43-2**, Polyimidazole **190201-51-5**, Pyrimidine, homopolymer
RL: DEV (Device component use); USES (Uses)
(method of fabrication of membrane **electrode** unit for polymer electrolyte fuel cells)

RN 25013-01-8 HCAPLUS

CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

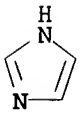
CM 1

CRN 110-86-1
CMF C5 H5 N

RN 82370-43-2 HCAPLUS
CN 1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)

CM 1

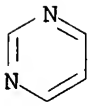
CRN 288-32-4
CMF C3 H4 N2



RN 190201-51-5 HCAPLUS
CN Pyrimidine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 289-95-2
CMF C4 H4 N2



L57 ANSWER 13 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:500393 HCAPLUS
DN 141:197277
TI Manipulation of the ultimate pattern of **polypyrrole** film on self-assembled monolayer patterned substrate by negative or positive **electrodeposition**
AU Zhou, Feng; Liu, Zhilu; Yu, Bo; Chen, Miao; Hao, Jingcheng; Liu, Weimin; Xue, Qunji
CS Lanzhou Institute of Chemical Physics, State Key Laboratory of Solid Lubrication, Chinese Academy of Sciences, Lanzhou, 730000, Peop. Rep. China
SO Surface Science (2004), 561(1), 1-10
CODEN: SUSCAS; ISSN: 0039-6028
PB Elsevier Science B.V.
DT Journal
LA English
AB Micropatterned self-assembled monolayer may lead to different ultimate patterns of **polypyrrole** (PPy) by way of pos. or neg. deposition in guiding the **electrodeposition** of pyrrole. This article gives a detailed investigation of the effects of exptl. conditions on the ultimate patterns of the PPy films on self-assembled monolayer (SAM)-patterned silicon and gold substrates. The effects of the substrate

surface elec. properties and the nature of the solvent and supporting electrolyte on the selective deposition and the PPy film morphol. are also discussed. As the results, neg. deposition occurs on the octadecyltrichlorosilane (OTS)-covered area of semiconductor Si surface in non-aqueous acetonitrile solution and results in pos. patterns, while pos. deposition occurs in aqueous solution and gives birth to neg. patterns. This is attributed to the accessibility of the monomer solution to the substrate surface. The **electrodeposition** preferentially occurs on the exposed area of a gold substrate, though the deposition on the octadecanthiol (ODT)-covered area is unavoidable due to the hydrophobic-hydrophobic interaction. The lypophilic properties of the deposited PPy can be modified by selecting different salts as the supporting electrolytes and doping different anions during the **electrodeposition.** Subsequently, the morphol. of the **electrodeposited** PPy layer can be tailored making use of the interaction between the PPy oligomer and the surfaces of different chemical functionalities.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 72

ST **electrodeposition polypyrrole** film microcontact lithog printed SAM modified substrate; selfassembled monolayer pattern substrate neg pos **polypyrrole electrodeposition**

IT Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(di-Me, stamp; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT Polymerization
(electrochem.; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT Contact angle
Electric conductivity
Electrodeposition
Hydrophilicity
Hydrophobicity
Microstructure
Polymer morphology
Self-assembled monolayers
(**electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT Lithography
(microcontact printing; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT Electric properties
(surface; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog. as function of substrate elec. properties and nature of solvent and supporting electrolyte)

IT 112-04-9, Octadecyltrichlorosilane 2885-00-9, 1-Octadecanethiol
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(SAM "ink"; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT 109-97-7, Pyrrole
RL: PEP (Physical, engineering or chemical process); PYP (Physical

process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT **30604-81-0P, Polypyrrole**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT 75-05-8, Acetonitrile, properties 7732-18-5, Water, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(solvent; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog. as function of substrate elec. properties and nature of solvent and supporting electrolyte)

IT 9016-00-6, Polydimethylsiloxane 31900-57-9, Polydimethylsiloxane
RL: DEV (Device component use); USES (Uses)
(stamp; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

IT 7440-21-3, Silicon, processes 7440-57-5, Gold, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(substrate; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

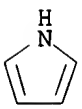
IT 429-42-5, Tetrabutylammonium tetrafluoroborate 2386-53-0, Sodium dodecylsulfonate 3109-63-5, Tetrabutylammonium hexafluorophosphate 7647-14-5, Sodium chloride, properties 7791-03-9, Lithium perchlorate **244193-48-4**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(supporting electrolyte; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog. as function of substrate elec. properties and nature of solvent and supporting electrolyte)

IT **30604-81-0P, Polypyrrole**
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog.)

RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7
CMF C4 H5 N



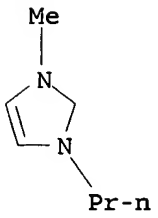
IT **244193-48-4**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(supporting electrolyte; **electrodeposition** of neg. or pos. **polypyrrole** patterns on substrates containing SAM patterns generated by microcontact lithog. as function of substrate elec. properties and nature of solvent and supporting electrolyte)

RN 244193-48-4 HCAPLUS
CN 1H-Imidazolium, 1-methyl-3-propyl-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 80432-06-0
CMF C7 H13 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

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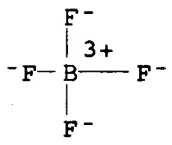
CRN 14874-70-5
CMF B F4
CCI CCS



RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 14 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:417024 HCAPLUS
DN 141:403419
TI I-/I3- redox reaction behavior on poly(3,4-ethylenedioxythiophene) counterelectrode in dye-sensitized solar cells
AU Saito, Yasuteru; Kubo, Wataru; Kitamura, Takayuki; Wada, Yuji; Yanagida, Shozo
CS Graduate School of Engineering, Material and Life Science, Osaka University, Osaka, Suita, 565-0871, Japan
SO Journal of Photochemistry and Photobiology, A: Chemistry (2004), 164(1-3), 153-157
CODEN: JPPCEJ; ISSN: 1010-6030
PB Elsevier Science B.V.
DT Journal
LA English

AB I-/I3- redox reaction behaviors on chemical polymerized p-toluenesulfonate doped poly(3,4-ethylenedioxythiophene) (PEDOT-TsO) and sputtered-Pt electrode were characterized to compare its performance as the counterelectrode in dye sensitized solar cells (DSCs). Adsorption of iodide species at the PEDOT surface, as well as Pt surface was little affected the redox reaction at the low concentration of redox couple. The PEDOT-TsO film had porous structure and charge transfer resistance of the PEDOT-TsO electrode decreased with the thickness. Photovoltaic performance of DSCs with PEDOT-TsO counterelectrode (CE) also improved with the thickness of PEDOT-TsO when ionic liquid was used for the electrolyte. The use of porous PEDOT-TsO counterelectrode that has low cost, simplified fabrication process and sufficient catalytic activity could enhance the potential of the DSCs for practical use.

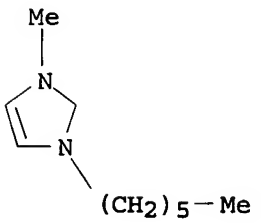
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 52, 72

IT Conducting polymers
(**polythiophenes**; iodide/triiodide redox reaction on p-toluenesulfonate doped poly(3,4-ethylenedioxythiophene) and Pt **electrodes** in dye-sensitized solar cells)

IT 7440-06-4, Platinum, properties 7553-56-2, Iodine, properties 10377-51-2, Lithium iodide 13463-67-7, Titania, properties 18282-10-5, Tin dioxide 118676-08-7, tert-Butylpyridine 126213-51-2, Poly(3,4-ethylenedioxythiophene) **178631-05-5**, 1-Methyl-3-hexylimidazolium iodide 207347-46-4, N719 **218151-78-1**, 1,2-Dimethyl-3-propylimidazolium iodide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(iodide/triiodide redox reaction on p-toluenesulfonate doped poly(3,4-ethylenedioxythiophene) and Pt **electrodes** in dye-sensitized solar cells)

IT **178631-05-5**, 1-Methyl-3-hexylimidazolium iodide
218151-78-1, 1,2-Dimethyl-3-propylimidazolium iodide
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(iodide/triiodide redox reaction on p-toluenesulfonate doped poly(3,4-ethylenedioxythiophene) and Pt **electrodes** in dye-sensitized solar cells)

RN 178631-05-5 HCAPLUS
CN 1H-Imidazolium, 1-hexyl-3-methyl-, iodide (9CI) (CA INDEX NAME)



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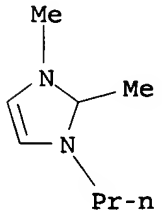
ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RN 218151-78-1 HCAPLUS

CN 1H-Imidazolium, 1,2-dimethyl-3-propyl-, iodide (9CI) (CA INDEX NAME)



● I^-

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 15 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:328921 HCAPLUS
DN 140:342159
TI Polymer membranes for a membrane-electrode unit for fuel cell
PA Sartorius A.-G., Germany
SO Ger. Gebrauchsmusterschrift, 12 pp.
CODEN: GGXXFR
DT Patent
LA German
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 202004000365	U1	20040422	DE 2004-202004000365	20040113
	DE 10301810	A1	20040729	DE 2003-10301810	20030120
PRAI	DE 2003-10301810	IA	20030120		

AB A membrane-electrode unit for polymer electrolyte fuel cells with an operating temperature ≤250° consists at least of two laminar gas distribution electrodes and a sandwich-like in-between arranged polymer membrane with ≥1 basic polymer as well as a dopant, provided between them. The gas distribution electrodes are so charged that they represent a dopant reservoir for the polymer membrane, whereby the polymer membrane is proton-conductive and firmly tied up to the gas distribution electrodes over the dopant after effect of pressure and temperature and has in the doped condition a conductivity of at least 0.1 S/m at a temperature of >25°.
IC ICM H01M008-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
IT Polybenzimidazoles
Polybenzothiazoles
Polybenzoxazoles
Polyoxadiazoles
Polyquinoxalines
RL: DEV (Device component use); USES (Uses)
(polymer membranes for membrane-**electrode** unit for fuel cell)
IT 298-07-7, Di(2-ethylhexyl) phosphate 838-85-7, Diphenyl phosphate
7440-06-4, Platinum, uses 7664-38-2D, Phosphoric acid, diester
25013-01-8, **Polypyridine 82370-43-2**,
Polyimidazole 128611-69-8, 1,3,4-Thiadiazole homopolymer
190201-51-5, Pyrimidine homopolymer

RL: DEV (Device component use); USES (Uses)
(polymer membranes for membrane-**electrode** unit for fuel cell)

IT **25013-01-8, Polypyridine 82370-43-2,**
Polyimidazole **190201-51-5**, Pyrimidine homopolymer
RL: DEV (Device component use); USES (Uses)
(polymer membranes for membrane-**electrode** unit for fuel cell)

RN 25013-01-8 HCAPLUS
CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

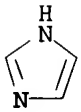
CM 1

CRN 110-86-1
CMF C5 H5 N

RN 82370-43-2 HCAPLUS
CN 1H-Imidazole, homopolymer (9CI) (CA INDEX NAME)

CM 1

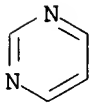
CRN 288-32-4
CMF C3 H4 N2



RN 190201-51-5 HCAPLUS
CN Pyrimidine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 289-95-2
CMF C4 H4 N2



L57 ANSWER 16 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:117315 HCAPLUS
DN 140:149157
TI An electrode for an electrochemical cell like a secondary battery and an electric double layer capacitor
IN Nobuta, Tomoki; Nishiyama, Toshihiko; Kamisuki, Hiroyuki; Kaneko, Shinako; Kurosaki, Masato; Nakagawa, Yuji; Mitani, Masaya
PA NEC Tokin Corporation, Japan

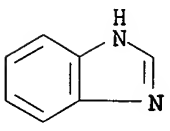
applicant

SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

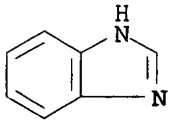
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1388906	A2	20040211	EP 2003-16458	20030722
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
	JP 2004127920	A2	20040422	JP 2003-198660	20030717
	JP 3701952	B2	20051005		
	CN 1481042	A	20040310	CN 2003-152651	20030804
	US 2004029003	A1	20040212	US 2003-634607	20030805
	HK 1060654	A1	20051125	HK 2004-102952	20040427
PRAI	JP 2002-227160	A	20020805		

AB This invention provides an electrode for an electrochem. cell in which an active material in an electrode material is a proton-conducting compound, wherein the electrode material comprises a nitrogen-containing heterocyclic compound or a polymer having a unit containing a nitrogen-containing heterocyclic moiety.

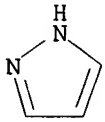
IC ICM H01M004-60
ICS H01M004-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 27, 38, 72, 76
IT **Polyquinoxalines**
RL: DEV (Device component use); USES (Uses)
(polyphenylquinoxalines; **electrode** for electrochem. cell like secondary battery and elec. double layer capacitor)
IT **51-17-2**, Benzimidazole **51-17-2D**, Benzimidazole, derivative **288-13-1**, Pyrazole **288-13-1D**, Pyrazole, derivative **288-32-4**, Imidazole, uses **288-32-4D**, Imidazole, derivative **288-88-0**, 1H-1,2,4-Triazole **670-96-2**, 2-Phenylimidazole **20154-03-4**, 3-Trifluoromethylpyrazole **25232-42-2**, Polyvinylimidazole 37306-44-8, Triazole 37306-44-8D, Triazole, derivative **420784-28-7**, 1H-**Indole trimer** **652968-46-2** 652968-47-3 **652968-48-4**
RL: DEV (Device component use); USES (Uses)
(**electrode** for electrochem. cell like secondary battery and elec. double layer capacitor)
IT **51-17-2**, Benzimidazole **51-17-2D**, Benzimidazole, derivative **288-13-1**, Pyrazole **288-13-1D**, Pyrazole, derivative **288-32-4**, Imidazole, uses **288-32-4D**, Imidazole, derivative **288-88-0**, 1H-1,2,4-Triazole **670-96-2**, 2-Phenylimidazole **20154-03-4**, 3-Trifluoromethylpyrazole **25232-42-2**, Polyvinylimidazole **420784-28-7**, 1H-**Indole trimer** **652968-46-2** **652968-48-4**
RL: DEV (Device component use); USES (Uses)
(**electrode** for electrochem. cell like secondary battery and elec. double layer capacitor)
RN 51-17-2 HCAPLUS
CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



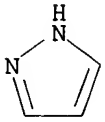
RN 51-17-2 HCAPLUS
CN 1H-Benzimidazole (9CI) (CA INDEX NAME)



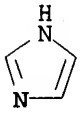
RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



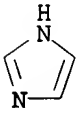
RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



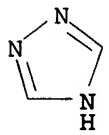
RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)



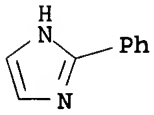
RN 288-32-4 HCAPLUS
CN 1H-Imidazole (9CI) (CA INDEX NAME)



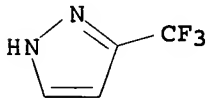
RN 288-88-0 HCAPLUS
CN 1H-1,2,4-Triazole (7CI, 9CI) (CA INDEX NAME)



RN 670-96-2 HCAPLUS
CN 1H-Imidazole, 2-phenyl- (9CI) (CA INDEX NAME)



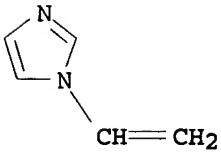
RN 20154-03-4 HCAPLUS
CN 1H-Pyrazole, 3-(trifluoromethyl)- (9CI) (CA INDEX NAME)



RN 25232-42-2 HCAPLUS
CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

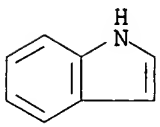
CRN 1072-63-5
CMF C5 H6 N2



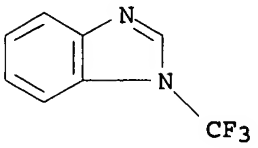
RN 420784-28-7 HCAPLUS
CN 1H-Indole, trimer (9CI) (CA INDEX NAME)

CM 1

CRN 120-72-9
CMF C8 H7 N

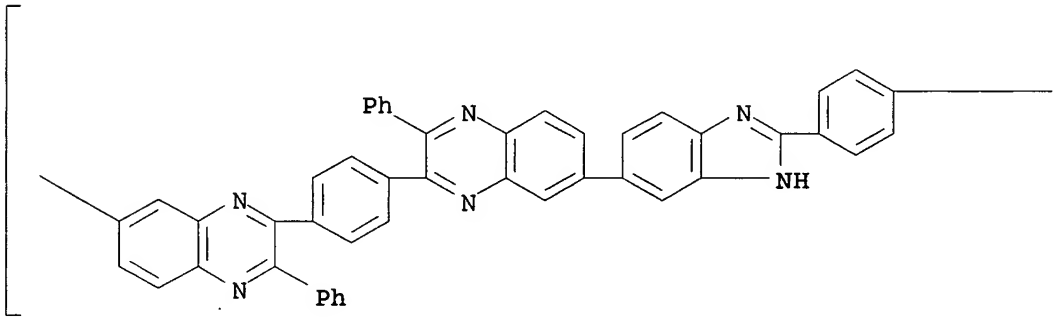


RN 652968-46-2 HCAPLUS
CN 1H-Benzimidazole, 1-(trifluoromethyl)- (9CI) (CA INDEX NAME)

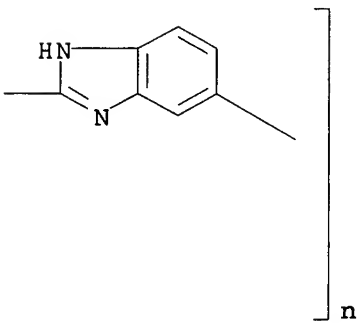


RN 652968-48-4 HCAPLUS
CN Poly[(3-phenyl-7,2-quinoxalinediyl)-1,4-phenylene(3-phenyl-2,7-quinoxalinediyl)-1H-benzimidazole-5,2-diyl-1,4-phenylene-1H-benzimidazole-2,5-diyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L57 ANSWER 17 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2004:57897 HCAPLUS
DN 140:131078
TI Electrode for secondary battery, its manufacture and the battery
IN Koyama, Hiroshi
PA Toyota Motor Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2004022294	A2	20040122	JP 2002-174550	20020614
PRAI	JP 2002-174550		20020614		

AB The electrode is manufactured by preparing an electrode paste containing an active mass and an ordinary-temperature molten salt; and forming an active mass layer by using the paste. The electrode has an active mass layer containing an active mass and an ordinary-temperature molten salt; where the particle pores of the active mass are debubbled. The battery has an ordinary-temperature molten salt based electrolyte layer between a cathode and an anode; where the cathode and/or the anode uses the above electrode.

IC ICM H01M004-02
ICS H01M004-62; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT **25013-01-8**, **Polypyridine** 90076-65-6
174899-82-2
RL: DEV (Device component use); USES (Uses)
(manufacture of **electrodes** containing ordinary-temperature molten salts for secondary batteries)

IT **25013-01-8**, **Polypyridine** **174899-82-2**
RL: DEV (Device component use); USES (Uses)
(manufacture of **electrodes** containing ordinary-temperature molten salts for secondary batteries)

RN 25013-01-8 HCAPLUS
CN Pyridine, homopolymer (9CI) (CA INDEX NAME)

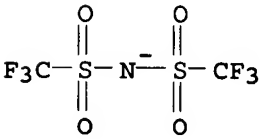
CM 1

CRN 110-86-1
CMF C5 H5 N

RN 174899-82-2 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]methanesulfonamide (1:1) (9CI) (CA INDEX NAME)

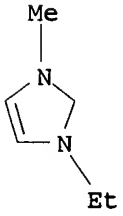
CM 1

CRN 98837-98-0
CMF C2 F6 N O4 S2



CM 2

CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L57 ANSWER 18 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:875559 HCAPLUS
DN 139:367552
TI Multilayered electrolyte-electrode membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating
IN Uensal, Oemer; Kiefer, Joachim
PA Celanese Ventures GmbH, Germany; Pemeas GmbH
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003092090	A2	20031106	WO 2003-EP4117	20030422
	WO 2003092090	A3	20050120		
	W: BR, CA, CN, JP, KR, MX, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR				
	DE 10218368	A1	20031106	DE 2002-10218368	20020425
	DE 10218367	A1	20031113	DE 2002-10218367	20020425
	CA 2483015	AA	20031106	CA 2003-2483015	20030422
	EP 1518282	A2	20050330	EP 2003-718780	20030422
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, RO, CY, TR, BG, CZ, EE, HU, SK				
	US 2005181254	A1	20050818	US 2003-512264	20030422
	JP 2005527948	T2	20050915	JP 2004-500346	20030422
PRAI	DE 2002-10218367	A	20020425		
	DE 2002-10218368	A	20020425		
	WO 2003-EP4117	W	20030422		

AB Proton-conducting multi-layered electrolyte membranes for fuel cells are characterized by at least one mineral acid-doped or mineral acid-containing flat surfaces and a barrier layer for the other layer, which, together, make up a membrane **electrode** assembly. Preferred mineral acids include H3PO4, H2SO4, and polyphosphoric acids. The barrier layer, which preferably consists of a cation exchanger with cation-exchange capacity <0.9 meq/g and a proton conductivity <0.06 S/cm, has a thickness of 10-30 μm (preferably <10 μm). The flat surfaces of the membrane consist of a basic polymer (or a basic polymer integrated with a second polymer or an inert support), selected from polyimidazoles, polybenzimidazoles, polybenzthiazoles, polybenzoxazoles, polytriazoles, polyoxadiazoles, polythiadiazoles, polypyrazoles, **polyquinoxalines**, **polypyridines**, **polypyrimidines**, or

poly(tetraazapyrenes). Such multilayer electrolyte membranes prevents mineral acid from being washed out and reduces the overvoltage on the cathode.

IC ICM H01M

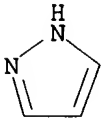
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

IT Polybenzimidazoles
Polybenzothiazoles
Polybenzoxazoles
Polyoxadiazoles
Polyquinoxalines
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(membranes; multilayered electrolyte-**electrode** membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating)

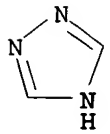
IT 110-86-1D, Pyridine, derivs., polymers **288-13-1D**, Pyrazole, derivs., polymers **288-88-0D**, 1H-1,2,4-Triazole, derivs., polymers 289-06-5D, Thiadiazole, derivs., polymers 289-95-2D, Pyrimidine, derivs., polymers 7258-75-5D, Pyrimido[4,5,6-gh]perimidine, 1,6-dihydro-, derivs., polymers 27380-27-4D, Pek, sulfonated
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(membranes; multilayered electrolyte-**electrode** membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating)

IT **288-13-1D**, Pyrazole, derivs., polymers **288-88-0D**, 1H-1,2,4-Triazole, derivs., polymers
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(membranes; multilayered electrolyte-**electrode** membrane assemblies containing mineral acids, basic polymers, and a cation exchange-type barrier coating)

RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-88-0 HCAPLUS
CN 1H-1,2,4-Triazole (7CI, 9CI) (CA INDEX NAME)

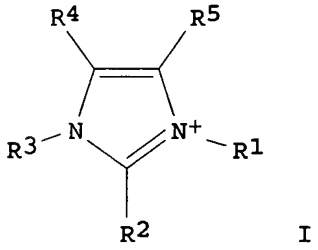


L57 ANSWER 19 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:675770 HCAPLUS
DN 139:216906
TI Electrochemical apparatus
IN Fuchigami, Kazuo; Atobe, Masato; Ishii, Hideki; Sekiguchi, Kei; Takada,

Naokado
PA Central Glass Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2003243028	A2	20030829	JP 2002-36172	20020214
PRAI JP 2002-36172		20020214		

GI



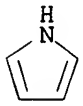
I

AB The apparatus, e.g., batteries, double layer capacitors, electrochromic display devices, has an ion conductor between a cathode and an anode; where conducting polymers are used for either or both **electrodes** are, and an ionic liquid is used for the ion conductor. The conducting polymer is selected from **polypyrrole**, **polythiophene**, and their derivs.; and the ionic liquid contains anions of formula: [CxF2x+1SO3]-, [N(SO2CxF2x+1)(SO2CyF2y+1)]-, [C(SO2CxF2x+1)(SO2CyF2y+1)(SO2CzF2z+1)]- (x, y, and z = an integer of 1-8) and cations I (R1-5 = H or C1-20 alkyl groups).

IC ICM H01M010-40
ICS H01G009-058; H01M004-02; H01M004-60
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 74, 76
IT 25233-34-5, **Polythiophene 30604-81-0**, **Polypyrrole 145022-44-2** 268536-05-6
RL: DEV (Device component use); USES (Uses)
(lithium fluorocarbonsulfonate electrolyte and conducting polymer **electrodes** for electrochem. devices)
IT **30604-81-0**, **Polypyrrole 145022-44-2**
RL: DEV (Device component use); USES (Uses)
(lithium fluorocarbonsulfonate electrolyte and conducting polymer **electrodes** for electrochem. devices)
RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

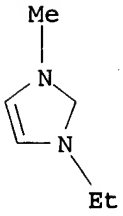
CRN 109-97-7
CMF C4 H5 N



RN 145022-44-2 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

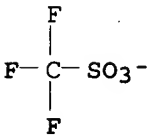
CRN 65039-03-4
CMF C6 H11 N2



ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

CM 2

CRN 37181-39-8
CMF C F3 O3 S



L57 ANSWER 20 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 2003:56660 HCAPLUS
DN 138:129733
TI Acid-base blend polymer electrolytes, their use in electrolyte membranes, and membrane/electrode assemblies
IN Kitamura, Kota; Sakaguchi, Yoshimitsu
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003022824	A2	20030124	JP 2001-208226	20010709
PRAI	JP 2001-208226		20010709		

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The electrolytes contain acidic polymers and basic polymers, wherein the acidic polymers are shown as [Ar1Ar2]n1[Ar3Ar4]m1 [the repeating units are connected in random or block; Ar1, Ar3 = I-VI; X1, X2 = O, S; Y = O, S, CO, CH2, CMe2, SO2; Ar2 = acidic group-containing divalent aromatic residue; Ar4 = C6H4, C10H6, (C6H4)2, C6H4SO2C6H4, C6H4COC6H4, C6H4OC6H4, C6H4CH2C6H4, C6H4CMe2C6H4, C6H4SC6H4; n1 = 1-10,000; m1 = 0-10,000] or VII (the repeating units are connected in random or block; X3, X4 = S, O; Z = SO3H, PO3H2, their salt; q = 1-3; n2 = 1-10,000; m2 = 0-10,000). The basic polymers may be 2-vinylpyridine polymers, 4-vinylpyridine polymers, polybenzimidazoles, polyquinolines, and/or **polyquinoxalines.** The claimed electrolyte membranes contain the blend polymer electrolytes as main components. The membrane/**electrode** assemblies contain the blend polymer electrolyte membranes in membrane and/or **electrode** layers. The electrolytes have high ion conductivity and durability and are suitable for fuel cell proton exchange membranes, binders in membrane/**electrode** assemblies, etc.

IC ICM H01M008-02
ICS C08L039-08; C08L079-08; H01B001-06; H01B001-12; H01M008-10

CC 76-2 (Electric Phenomena)
Section cross-reference(s): 38, 52

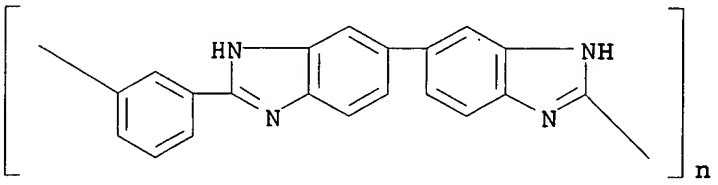
IT Polybenzimidazoles
Polyquinolines
Polyquinoxalines
RL: TEM (Technical or engineered material use); USES (Uses)
(basic component; acid-base blend polymer electrolytes containing acidic benzoxazole or benzothiazole polymers for electrolyte membranes and membrane/**electrode** assemblies)

IT 25232-41-1, Poly(4-vinylpyridine) 25584-58-1, Poly(p-phenylenebenzbisimidazole) **25734-65-0**, Poly(2,2'-(m-phenylene)-5,5'-bibenzimidazole)
RL: TEM (Technical or engineered material use); USES (Uses)
(basic component; acid-base blend polymer electrolytes containing acidic benzoxazole or benzothiazole polymers for electrolyte membranes and membrane/**electrode** assemblies)

IT **25734-65-0**, Poly(2,2'-(m-phenylene)-5,5'-bibenzimidazole)
RL: TEM (Technical or engineered material use); USES (Uses)
(basic component; acid-base blend polymer electrolytes containing acidic benzoxazole or benzothiazole polymers for electrolyte membranes and membrane/**electrode** assemblies)

RN 25734-65-0 HCAPLUS

CN Poly([5,5'-bi-1H-benzimidazole]-2,2'-diyl-1,3-phenylene) (9CI) (CA INDEX NAME)



L57 ANSWER 21 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 2002:879236 HCAPLUS
DN 138:162684
TI Pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution
AU Deore, Bhavana A.; Shiigi, Hiroshi; Nagaoka, Tsutomu
CS Faculty of Engineering, Department of Applied Chemistry, Yamaguchi University, Ube, 755-8611, Japan
SO Talanta (2002), 58(6), 1203-1211
CODEN: TLNTA2; ISSN: 0039-9140
PB Elsevier Science B.V.
DT Journal
LA English
AB The successful pulsed amperometric detection of underivatized amino acids were carried out in an acidic media on a **polypyrrole** (PPy) modified Cu **electrode.** The formation of PPy film doped with glutamate (glu) on a Cu **electrode** surface changes the mechanism of Cu dissoln. After application of multistep potential waveform, the PPy film was glu free due to the electro-reduction and overoxidn. High anodic potential polarization treatment yielded partially overoxidized PPy film as long as the Cu surface dissoln. and amino acid permeation through the film was well controlled. This overoxidized PPy film acted as a charge and size exclusion barrier to improve the selectivity and stability of a Cu **electrode.** Various process parameters such as film modification time, detection and cleaning potential and pH of solution were optimized to maximize the beneficial electrocatalytic properties of the **electrode** surface. At an optimized condition, detection limits for pos. charged histidine and arginine are 19 and 22 pg, resp., whereas the neutral amino acids detected in amts. of 0.9-2.3 ng. Also, the PPy coated Cu **electrode** response was long lived, stable and reproducible.
CC 80-2 (Organic Analytical Chemistry)
Section cross-reference(s): 72
ST amino acid detection pulsed amperometry **polypyrrole** modified copper **electrode**
IT **Electrodes**
(amperometric; pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)
IT Amino acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(analytes; pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)
IT Cleaning
(cathodic; pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)
IT Amperometry
(pulsed; pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)
IT 11070-68-1, Glutamate, analysis
RL: ARU (Analytical role, unclassified); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
(**polypyrrole** doped with; pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)
IT 7440-50-8, Copper, analysis **30604-81-0D, Polypyrrole,** glutamate doped
RL: ARU (Analytical role, unclassified); DEV (Device component use); PRP

(Properties); ANST (Analytical study); USES (Uses)
(pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)

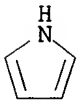
IT 52-90-4, Cysteine, analysis 56-40-6, Glycine, analysis 56-41-7, L-Alanine, analysis 56-86-0, Glutamic acid, analysis 61-90-5, Leucine, analysis 63-91-2, Phenylalanine, analysis **71-00-1**, Histidine, analysis 72-18-4, Valine, analysis 72-19-5, Threonine, analysis 74-79-3, Arginine, analysis
RL: ARU (Analytical role, unclassified); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
(pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)

IT **30604-81-0D**, **Polypyrrole**, glutamate doped
RL: ARU (Analytical role, unclassified); DEV (Device component use); PRP (Properties); ANST (Analytical study); USES (Uses)
(pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)

RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

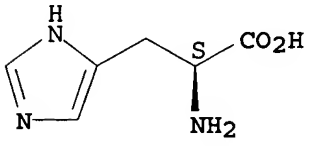
CRN 109-97-7
CMF C4 H5 N



IT **71-00-1**, Histidine, analysis
RL: ARU (Analytical role, unclassified); MOA (Modifier or additive use); ANST (Analytical study); USES (Uses)
(pulsed amperometric detection of underivatized amino acids using **polypyrrole** modified copper **electrode** in acidic solution)

RN 71-00-1 HCAPLUS
CN L-Histidine (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



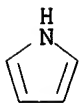
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L57 ANSWER 22 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:141968 HCAPLUS
DN 124:187810
TI Biomimetic catalysis in a heterogeneous phase. Model systems of cytochrome

P-450 using electrodes modified with manganese porphyrins
AU Gutierrez Granados, Silvia
CS Instituto Investigaciones Cientificas, Universidad Guanajuato, Mex.
SO Ciencia (Mexico City) (1995), 46(1), 121-36
CODEN: CIENA3; ISSN: 0366-6409
PB Academia de la Investigacion Cientifica
DT Journal; General Review
LA Spanish
AB A review with many refs. is given. Biomimetic systems based on synthetic metalloporphyrins that reconstitute the active site of cytochrome P 450 have been widely studied. The mol. O2 activation mechanism promotes electron exchange with the central metal ion, confirming the possibility of an electrochem. process. The catalytic process that involves porphyrins needs the participation of a reducing agent (either chemical or electrochem.), a co-catalyst (methylimidazole) and an activator (benzoic anhydride). The present work analyzes the use of modified **electrodes** in the mol. O2 electrochem. activation following the model of cytochrome P 450. Among the different types of **electrode** materials, **polypyrrole** allows the fixation of numerous metallic complexes, such as Mn porphyrin, on the **electrode** surface. These types of polymeric layers have been successfully used as catalysts in the electrochem. oxidation of diverse hydrocarbons on a preparative scale.
CC 72-0 (Electrochemistry)
Section cross-reference(s): 9, 67
IT **30604-81-0, Polypyrrole**
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(biomimetic catalysis in heterogeneous phase and model systems of cytochrome P 450 using **electrodes** modified with manganese porphyrins with fixation by **polypyrrole**)
IT **30346-87-3**, Methylimidazole
RL: CAT (Catalyst use); USES (Uses)
(cocatalyst of methylimidazole biomimetic catalysis in heterogeneous phase and model systems of cytochrome P 450 using **electrodes** modified with manganese porphyrins)
IT **30604-81-0, Polypyrrole**
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PROC (Process); USES (Uses)
(biomimetic catalysis in heterogeneous phase and model systems of cytochrome P 450 using **electrodes** modified with manganese porphyrins with fixation by **polypyrrole**)
RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

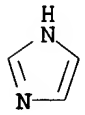
CM 1

CRN 109-97-7
CMF C4 H5 N



IT **30346-87-3**, Methylimidazole
RL: CAT (Catalyst use); USES (Uses)
(cocatalyst of methylimidazole biomimetic catalysis in heterogeneous phase and model systems of cytochrome P 450 using **electrodes**

modified with manganese porphyrins)
RN 30346-87-3 HCAPLUS
CN 1H-Imidazole, methyl- (9CI) (CA INDEX NAME)



D1—Me

L57 ANSWER 23 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1996:73327 HCAPLUS
DN 124:92699
TI Manufacture of a **polypyrrole** positive **electrode** (cathode) for secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte and an aluminum anode
IN Bjerrum, Niels J.; Petrushina, Irina M.; Vestergaard, Bo; Hjuler, Hans Aage; Berg, Rolf W.
PA Den.
SO Dan., 15 pp.
CODEN: DAXXAF
DT Patent
LA Danish
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DK 170626	B1	19951113	DK 1993-1045	19930920
DK 9301045	A	19950321		
PRAI DK 1993-1045		19930920		

AB The **polypyrrole electrodes** are electrochem. activated by pretreatment (doping) in an AlCl3-containing molten salt electrolyte. Addnl., the pretreatment electrolyte contains 1-methyl-3-ethyl-imidazolium chloride (or derivs. thereof) and/or 1,4-dimethyl-1,2,4-triazolium chloride (or derivs. thereof). The batteries may be operated at room temperature or higher temperature, and permits more recharge cycles. A mixture of **polypyrrole** powder 77, Teflon powder 12, and carbon black powder 11 weight% (as a suspension of Teflon and carbon black powder in Me2CO) was spread on a Pt foil. The coated foil was pretreated in a molten mixture of 1-methyl-3-ethyl-imidazolium chloride and AlCl3.
IC ICM H01M004-60
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **polypyrrole** pos **electrode** secondary battery; Teflon carbon black **polypyrrole electrode**; methylethylimidazolium chloride **electrode**; dimethyltriazolium chloride **electrode**
IT Carbon black, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with Teflon and **polypyrrole**; pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)
IT Batteries, secondary
Cathodes
(pretreatment of **polypyrrole**-based pos. **electrodes**

for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

IT 9002-84-0, Teflon
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with carbon black and **polypyrrole**; pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

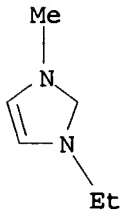
IT **65039-09-0**, 1-Methyl-3-ethyl-imidazolium chloride 136152-27-7
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with molten aluminum chloride; pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

IT 7446-70-0, Aluminum chloride, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

IT **30604-81-0**, **Polypyrrole**
RL: TEM (Technical or engineered material use); USES (Uses)
(pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

IT **65039-09-0**, 1-Methyl-3-ethyl-imidazolium chloride
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with molten aluminum chloride; pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl^-

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

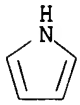
IT **30604-81-0**, **Polypyrrole**
RL: TEM (Technical or engineered material use); USES (Uses)
(pretreatment of **polypyrrole**-based pos. **electrodes** for improved performance in secondary batteries comprising an aluminum chloride-containing molten salt as electrolyte)

RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

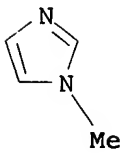
CM 1

CRN 109-97-7

CMF C4 H5 N

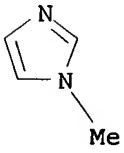


L57 ANSWER 24 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1994:176116 HCAPLUS
DN 120:176116
TI Electroanalytical study of the activation of dioxygen in acetonitrile solution by manganese porphyrin films deposited onto carbon electrodes
AU Gutierrez-Granados, Silvia; Bedioui, Fethi; Devynck, Jacques
CS Lab. Electrochim., Ec. Natl. Super. Chim. Paris, Paris, 75231, Fr.
SO Electrochimica Acta (1993), 38(13), 1747-51
CODEN: ELCAAV; ISSN: 0013-4686
DT Journal
LA English
AB Electrochem. anal. of the activation of dioxygen in aprotic solns. (acetonitrile) by manganese porphyrin polymer films was studied by rotating disk **electrode** voltammetry. In the presence of a benzoic anhydride electrophile, the electrocatalytic reduction of O2 occurs by a process postulated to involve a high-valent manganese-oxo porphyrin according to a same scheme already described for the metalloporphyrin dissolved in solution This anal. shows that thin **polypyrrole** -manganese porphyrin films do not induce a limitation due to the diffusion of O2 and other reagents through the polymer during the electrocatalytic activation of dioxygen.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 36, 67, 78
IT 93-97-0, Benzoic anhydride **616-47-7**, 1-Methyl imidazole
RL: PRP (Properties)
(electrocatalytic reduction of oxygen on carbon **electrode** with (pyrrolylphenyl)tritolylporphyrinato complex polymer film in acetonitrile containing)
IT **616-47-7**, 1-Methyl imidazole
RL: PRP (Properties)
(electrocatalytic reduction of oxygen on carbon **electrode** with (pyrrolylphenyl)tritolylporphyrinato complex polymer film in acetonitrile containing)
RN 616-47-7 HCAPLUS
CN 1H-Imidazole, 1-methyl- (9CI) (CA INDEX NAME)

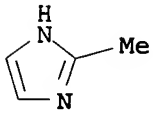


L57 ANSWER 25 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1993:612806 HCAPLUS
DN 119:212806
TI Poly(pyrrole-manganese porphyrin): a catalytic electrode material as a model system for olefin epoxidation and drug metabolism with molecular

oxygen
AU Cauquis, G.; Cosnier, S.; Deronzier, A.; Galland, B.; Limosin, D.; Moutet, J. C.; Bizot, J.; Deprez, D.; Pulicani, J. P.
CS Lab. Electrochim. Org. Photochim. Redox, Univ. Joseph Fourier Grenoble 1, Grenoble, 38041, Fr.
SO Journal of Electroanalytical Chemistry (1993), 352(1-2), 181-95
CODEN: JECHES; ISSN: 0368-1874
DT Journal
LA English
AB The oxidative electropolymn. of 3 pyrrole-substituted Mn tetraphenylporphyrins can be used to coat Pt or C electrodes with polymeric films able to catalyze the epoxidn. of cyclooctene and stilbene with mol. O. Cross-linked polymers prepared from monomers containing 2 or 3 pyrrole groups, and thus having a better polymerizability, present a lower activity than the polymeric films synthesized from the monomer containing only 1 pyrrole moiety. Confinement of the catalyst on the electrode surface markedly improves its stability compared with that of homogeneous electrocatalytic systems. This catalytic electrode material was successfully applied to the preparation of oxidized metabolites of a drug.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 22, 63, 78
ST **polypyrrole** manganese porphyrin catalytic **electrode**
epoxidn; drug metab mol oxygen olefin epoxidn
IT **616-47-7**, 1-Methylimidazole **693-98-1**, 2-Methylimidazole
RL: PRP (Properties)
(in epoxidn. of cyclooctene and stilbene on catalytic **electrodes** coated with poly(pyrrole-manganese porphyrin))
IT **616-47-7**, 1-Methylimidazole **693-98-1**, 2-Methylimidazole
RL: PRP (Properties)
(in epoxidn. of cyclooctene and stilbene on catalytic **electrodes** coated with poly(pyrrole-manganese porphyrin))
RN 616-47-7 HCAPLUS
CN 1H-Imidazole, 1-methyl- (9CI) (CA INDEX NAME)



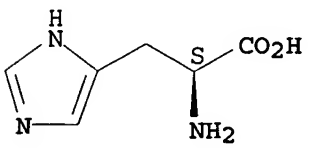
RN 693-98-1 HCAPLUS
CN 1H-Imidazole, 2-methyl- (9CI) (CA INDEX NAME)



L57 ANSWER 26 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1993:490387 HCAPLUS
DN 119:90387
TI Selectivity of conducting polymer electrodes and their application in flow injection analysis of amino acids
AU Cooper, J. C.; Haemmerle, M.; Schuhmann, W.; Schmidt, H. L.
CS Lehrstuhl Allg. Chem. Biochem., Tech. Univ. Munchen, Freising-

Weihenstephan, (W)-8050, Germany
SO Biosensors & Bioelectronics (1993), 8(1), 65-74
CODEN: BBIOE4; ISSN: 0956-5663
DT Journal
LA English
AB The size-exclusion properties of conducting polymer modified **electrodes** depend on the polymer morphol. and thickness. By controlling the polymerization conditions, polymer modified **electrodes** can be produced that prevent access of certain small redox mols. to the **electrode** surface, whilst permitting oxidation of anal. relevant hydrogen peroxide to take place. Such polymer **electrodes** find application in amperometric detection of amino acids. Certain amino acids are electroactive and are oxidized directly on the **electrode** surface at the potential required for measurements. Polymer modification of the **electrode** enables direct amino acid oxidation, and associated **electrode** fouling effects, to be suppressed. The size exclusion properties of **polyaniline** and **polypyrrole** were compared by investigating oxidation of hydrogen peroxide and electroactive amino acids at such polymer modified **electrodes.** **Polyaniline** was found to be more effective than **polypyrrole** at suppressing direct amino acid oxidation A **polyaniline electrode**, which permitted oxidation of hydrogen peroxide but prevented direct amino acid oxidation, was used together with L-amino acid oxidase immobilized on an enzyme column for measurement of electroactive amino acids. Whereas the response at a bare platinum **electrode** decreased significantly during the measurement, the response of a 700 mC cm-2 **polyaniline electrode** remained almost constant, indicating that **electrode** fouling was practically eliminated.
CC 9-1 (Biochemical Methods)
IT Permeability and Permeation
(of **polyaniline** and **polypyrrole**, flow injection anal. of amino acids by **electrodes** in relation to)
IT 52-90-4, Cysteine, analysis 60-18-4, Tyrosine, analysis 63-68-3, Methionine, analysis **71-00-1**, Histidine, analysis 73-22-3, Tryptophan, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by flow injection anal. with conducting polymer **electrodes**, polymer selectivity in relation to)
IT **25233-30-1**, **Polyaniline 30604-81-0**, **Polypyrrole**
RL: ANST (Analytical study)
(**electrode** modified with, flow injection anal. of amino acids with, polymer permeability properties in relation to)
IT **71-00-1**, Histidine, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by flow injection anal. with conducting polymer **electrodes**, polymer selectivity in relation to)
RN 71-00-1 HCAPLUS
CN L-Histidine (9CI) (CA INDEX NAME)

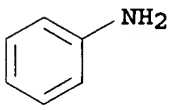
Absolute stereochemistry. Rotation (-).



IT **25233-30-1, Polyaniline 30604-81-0, Polypyrrole**
RL: ANST (Analytical study)
(**electrode** modified with, flow injection anal. of amino acids with, polymer permeability properties in relation to)
RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

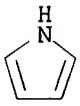
CRN 62-53-3
CMF C6 H7 N



RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 109-97-7
CMF C4 H5 N



L57 ANSWER 27 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1992:493801 HCAPLUS
DN 117:93801
TI Secondary batteries with polymer electrodes
IN Yoshinaga, Noryuki; Fujimoto, Masahisa; Furukawa, Sanehiro
PA Sanyo Denki K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04104477	A2	19920406	JP 1990-222005	19900822
	JP 3108082	B2	20001113		
PRAI	JP 1990-222005		19900822		

AB In batteries use conducting polymer anodes and/or cathodes and N-containing compds. as electrolyte solvents. The compds. are selected from pyrrolidone, pyrrolidine, pyrroline, pyrazole, pyrazolidine, imidazole, triazole, tetrazole, and their derivs. There batteries have high capacity d.

IC ICM H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT **25233-30-1, Polyaniline** 25233-34-5,

Polythiophene 30604-81-0, Polypyrrole
RL: USES (Uses)
(**electrodes**, batteries with, nitrogen-containing compds. as electrolyte solvents for)

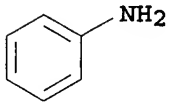
IT 123-75-1, Pyrrolidine, uses **288-13-1**, Pyrazole **288-32-4**, Imidazole, uses 288-94-8, 1H-Tetrazole 504-70-1, Pyrazolidine 616-45-5, Pyrrolidone 638-31-3, 2-Pyrroline 872-50-4, N-Methyl-2-pyrrolidone, uses 28350-87-0, Pyrroline 37306-44-8, Triazole
RL: USES (Uses)
(electrolyte solvent, for batteries with polymer **electrodes**)

IT **25233-30-1**, **Polyaniline** **30604-81-0**, **Polypyrrole**
RL: USES (Uses)
(**electrodes**, batteries with, nitrogen-containing compds. as electrolyte solvents for)

RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

CM 1

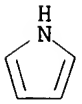
CRN 62-53-3
CMF C6 H7 N



RN 30604-81-0 HCAPLUS
CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

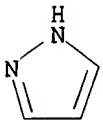
CM 1

CRN 109-97-7
CMF C4 H5 N



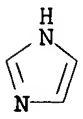
IT **288-13-1**, Pyrazole **288-32-4**, Imidazole, uses
RL: USES (Uses)
(electrolyte solvent, for batteries with polymer **electrodes**)

RN 288-13-1 HCAPLUS
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 288-32-4 HCAPLUS

CN 1H-Imidazole (9CI) (CA INDEX NAME)



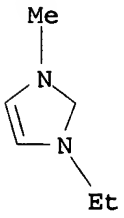
L57 ANSWER 28 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1992:183388 HCAPLUS
DN 116:183388
TI Simultaneous EPR and electrochemical measurements on polyaniline in ambient temperature molten salts
AU Tang, J.; Allendoerfer, R. D.; Osteryoung, R. A.
CS Dep. Chem., State Univ. New York, Buffalo, NY, 14214, USA
SO Journal of Physical Chemistry (1992), 96(8), 3531-6
CODEN: JPCHAX; ISSN: 0022-3654
DT Journal
LA English
AB Simultaneous EPR and electrochem. measurements have been carried out on polyaniline (PAn) prepared by monomer oxidation in an acidic aqueous solution and investigated in an ambient temperature ionic liquid, which consists of a mixture of aluminum chloride and 1-methyl-3-ethylimidazolium chloride. The maximum EPR response was found at the point where half the total observed charge had been passed in both cyclic voltammetry and potential step expts. A one-to-one relationship between the number of spins observed and the number of electrons removed was found to .apprx.25% of full oxidation Expts. are explained in terms of two unresolved one-electron steps, with a thermodn. comproportionation equilibrium among the neutral, polaron, and bipolaron states. The equilibrium constant Kcom of the reduced form, α, and of the oxidized form, β, changes with the conductivity and ionic environment of the film. The bipolaron is favored in the initial doping process, and the polaron is dominant in the final doping stage. The EPR response of the polaron decays with a half-life between 8 and 17 s.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 36, 77
ST reaction electrochem **polyaniline** ESR chloroaluminate melt; oxidn electrochem **polyaniline** ESR chloroaluminate melt; redn electrochem **polyaniline** ESR chloroaluminate melt; bipolaron formation **polyaniline electrode** chloroaluminate melt; cond **polyaniline electrode** melt equal const; aluminum methylethylimidazolium chloride melt **polyaniline electrode**
IT Spin, electronic
(in **polyaniline electrode**)
IT Electron spin resonance
(of **polyaniline electrode** in aluminum chloride-methylethylimidazolium chloride melt, electrochem. reactions in relation to)
IT Electric conductivity and conduction
(of **polyaniline electrode** in aluminum chloride-methylethylimidazolium chloride melt, equilibrium constant in relation to)
IT Polaron
(di-, formation of, in **polyaniline electrode** in aluminum chloride-methylethylimidazolium chloride melt)
IT **65039-09-0**, 1-Methyl-3-ethylimidazolium chloride
RL: PRP (Properties)

(ESR and electrochem. reactions of **polyaniline** **electrode** in aluminum chloride melt with)

IT 7446-70-0, Aluminum chloride, properties
RL: PRP (Properties)
(ESR and electrochem. reactions of **polyaniline** **electrode** in methylethylimidazolium chloride melt with)

IT **65039-09-0**, 1-Methyl-3-ethylimidazolium chloride
RL: PRP (Properties)
(ESR and electrochem. reactions of **polyaniline** **electrode** in aluminum chloride melt with)

RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl^-

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

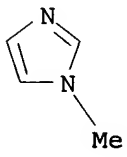
L57 ANSWER 29 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1991:642361 HCAPLUS
DN 115:242361
TI Electroassisted oxidation of cis-cyclooctene and adamantane by molecular oxygen catalyzed by polypyrrole manganese porphyrin films
AU Bedioui, F.; Gutierrez Granados, S.; Gaillon, L.; Bied-Charreton, C.; Devynck, J.
CS Lab. Electrochim., Ec. Natl. Super. Chim., Paris, 75231, Fr.
SO Studies in Surface Science and Catalysis (1991), 66(Dioxygen Act. Homogeneous Catal. Oxid.), 221-8
CODEN: SSCTDM; ISSN: 0167-2991
DT Journal
LA English
AB The electrochem. polymerization of pyrrole-substituted manganese porphyrin complex on carbon and graphite electrodes was performed in acetonitrile solution The redox and catalytic properties of the polymer films were examined by cyclic voltammetry. Electroassisted oxidation reactions of cis-cyclooctene and adamantane with mol. oxygen, under atmospheric pressure, in acetonitrile and dichloromethane solns. are described using the manganese porphyrin-coated electrodes as catalysts. One remarkable aspect of the results is the large activity of the porphyrin catalyst when it is attached on the electrode.
CC 72-2 (Electrochemistry)
Section cross-reference(s): 22, 36, 78
IT Oxidation catalysts
(electrochem., **polypyrrole** manganese porphyrin films on carbon and graphite **electrode**, for cyclooctene and adamantane)
IT **616-47-7**, 1-Methylimidazole
RL: PRP (Properties)

(cyclic voltammetry of vitreous carbon disk **electrode** coated with film of **polypyrrole**-manganese porphyrin in acetonitrile containing)

IT 93-97-0
RL: PRP (Properties)
(cyclic voltammetry of vitreous carbon disk **electrode** coated with film of **polypyrrole**-manganese porphyrin in solution containing methylimidazole and)

IT **616-47-7**, 1-Methylimidazole
RL: PRP (Properties)
(cyclic voltammetry of vitreous carbon disk **electrode** coated with film of **polypyrrole**-manganese porphyrin in acetonitrile containing)

RN 616-47-7 HCAPLUS
CN 1H-Imidazole, 1-methyl- (9CI) (CA INDEX NAME)



L57 ANSWER 30 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1991:586737 HCAPLUS
DN 115:186737
TI Polyaniline batteries
IN Koura, Nobuyuki; Ejiri, Yoichi
PA Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 03074052	A2	19910328	JP 1989-207891	19890814
PRAI JP 1989-207891		19890814		

AB Primary and secondary batteries use **polyaniline** prepared from a room-temperature molten-salt bath containing aniline for their **electrodes.** The molten salt may be a mixture of 1-butylpyridinium chloride, N-containing 6-membered ring alkyl halide, and Al halide or, for the preparation of **polyaniline** for cathodes, a mixture containing 1-ethyl-3-methylimidazolium chloride, N-containing 5-membered ring alkyl halide, Al halide, and optionally an organic solvent or halides of alkali and alkaline earth metals. When both **electrodes** are from **polyaniline**, the batteries are divided by a separator or an ion-exchange membrane into a cathode chamber and an anode chamber, and preferably use acidic and alkaline room-temperature molten salts for catholyte and anolyte, resp.

IC ICM H01M004-04
ICS H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST battery **polyaniline electrode**; **polyaniline electrode** synthesis molten salt; butylpyridinium chloride **polyaniline electrode** synthesis; ethylmethylimidazolium chloride **polyaniline electrode** synthesis; aluminum halide **polyaniline electrode** synthesis; heterocyclic

halide **polyaniline electrode** synthesis

IT **Electrodes**
(battery, **polyaniline** for, manufacture of, by electropolymn. in room-temperature molten-salt bath)

IT **25233-30-1P, Polyaniline**
RL: PREP (Preparation)
(manufacture of, for battery **electrodes**, by electrolytic polymerization, room-temperature molten-salt baths in)

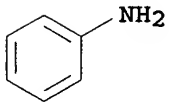
IT 71-43-2, Benzene, uses and miscellaneous 1124-64-7 7446-70-0, Aluminum chloride, uses and miscellaneous **65039-09-0**
RL: USES (Uses)
(molten-salt bath containing, electropolymn. of aniline in, for battery **electrodes**)

IT **25233-30-1P, Polyaniline**
RL: PREP (Preparation)
(manufacture of, for battery **electrodes**, by electrolytic polymerization, room-temperature molten-salt baths in)

RN 25233-30-1 HCAPLUS
CN Benzenamine, homopolymer (9CI) (CA INDEX NAME)

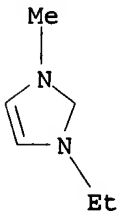
CM 1

CRN 62-53-3
CMF C6 H7 N



IT **65039-09-0**
RL: USES (Uses)
(molten-salt bath containing, electropolymn. of aniline in, for battery **electrodes**)

RN 65039-09-0 HCAPLUS
CN 1H-Imidazolium, 1-ethyl-3-methyl-, chloride (9CI) (CA INDEX NAME)



● Cl⁻

ONE OR MORE TAUTOMERIC DOUBLE BONDS NOT DISPLAYED IN THE STRUCTURE

L57 ANSWER 31 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1988:64669 HCAPLUS
DN 108:64669
TI Electrically conductive polymer films and electrode materials coated with

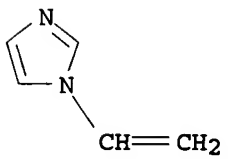
them
IN Naarmann, Herbert
PA BASF A.-G., Fed. Rep. Ger.
SO Ger. Offen., 5 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI DE 3609137	A1	19870924	DE 1986-3609137	19860319
EP 241728	A1	19871021	EP 1987-103749	19870314
R: BE, DE, FR, GB, NL				
PRAI DE 1986-3609137	A	19860319		

AB Films containing elec. conductive polymers are formed by electrochem. polymerization of the monomers on flat **electrodes** in baths containing conductive salts. The films are used to coat **electrode** materials and and for antistatic finishing of plastics or for shielding electromagnetic waves. H2O, pyrrole, lignin sulfate, and Na dodecylsulfate were combined and the solution was polymerized at 22° and c.d. 3 mA/cm2 for 60 min. A **polypyrrole** film 100 μm thick with an elec. conductivity of 20 S/cm and a tear resistance of 40 N/mm2 was obtained.
IC ICM C25B003-10
ICS C08F002-58; C08F002-44; C08L045-00; C09D005-24; H05K009-00; H05F001-02; G12B017-02; C25D013-08; H01B001-12
ICA C08F034-00; C08F032-00; H01L029-28; H01L023-48
CC 72-9 (Electrochemistry)
Section cross-reference(s): 38, 76
ST polymn electrochem elec conductive polymer; **polypyrrole** film elec conductive **electrode**
IT 9002-86-2P, PVC 9003-09-2P 9003-19-4P, Poly(vinyl ether) 9003-39-8P, Poly(vinyl pyrrolidone) 9004-67-5P, Cellulose methyl ether **25232-42-2P**, Poly(vinyl imidazole) **30604-81-0P**, **Polypyrrole**
RL: PREP (Preparation)
(elec. conductive films, electrochem. production of, for **electrodes**)
IT **25232-42-2P**, Poly(vinyl imidazole) **30604-81-0P**, **Polypyrrole**
RL: PREP (Preparation)
(elec. conductive films, electrochem. production of, for **electrodes**)
RN 25232-42-2 HCAPLUS
CN 1H-Imidazole, 1-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 1072-63-5
CMF C5 H6 N2

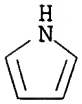


RN 30604-81-0 HCAPLUS

CN 1H-Pyrrole, homopolymer (9CI) (CA INDEX NAME)

CM 1

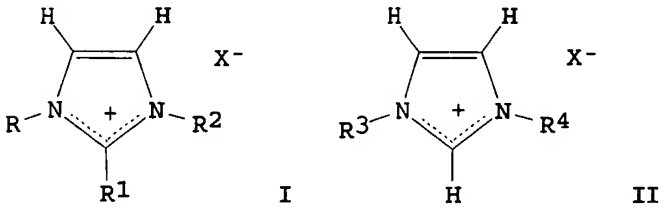
CRN 109-97-7
CMF C4 H5 N



L57 ANSWER 32 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1984:574739 HCAPLUS
DN 101:174739
TI Secondary batteries using room-temperature molten nonaqueous electrolytes containing 1,2,3-trialkylimidazolium halides or 1,3-dialkylimidazolium halides
IN Gifford, Paul R.; Shacklette, Lawrence W.; Toth, James E.; Wolf, James F.
PA Allied Corp., USA
SO U.S., 7 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4463071	A	19840731	US 1983-556496	19831130
	GB 2150739	A1	19850703	GB 1984-29180	19841119
	GB 2150739	B2	19861001		
	DE 3443326	A1	19850605	DE 1984-3443326	19841128
	JP 60133670	A2	19850716	JP 1984-253961	19841130
PRAI	US 1983-556496	A	19831130		

GI



I II

AB Batteries, and especially secondary batteries use conjugated backbone polymer anodes, alkali metal-transition metal chalcogenide cathodes, and a nonaq. molten electrolyte mixture of an Al halide and I and(or) II, where R, R1, R2, R3, and R4 are independently C1-12 alkyl groups and X is independently a halide, e.g., Cl- or Br-. In some instances an alkali metal and(or) tetraalkylammonium salt may also be incorporated into the electrolyte composition The molar ratio of Al halide to I or II in the electrolyte can be varied over a wide range to make the electrolyte basic or neutral and, as such, useful in batteries with the above-mentioned **electrodes**, such as LixWO2 or LixCoO2 cathodes. Thus, a LiCoO2-**polyacetylene** battery with an electrolyte mixture of 1,2-dimethyl-3-ethylimidazolium

chloride [**92507-97-6**], AlCl3, and LiCl was prepared, and its performance is reported.
IC H01M006-14
INCL 429194000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
IT **25067-58-7**
RL: USES (Uses)
(**electrodes**, in battery with molten aluminum chloride-trialkylimidazolium chloride electrolyte)
IT **25067-58-7**
RL: USES (Uses)
(**electrodes**, in battery with molten aluminum chloride-trialkylimidazolium chloride electrolyte)
RN 25067-58-7 HCAPLUS
CN Ethyne, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 74-86-2
CMF C2 H2

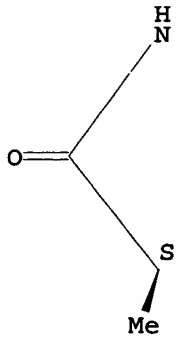
HC≡CH

L57 ANSWER 33 OF 33 HCAPLUS COPYRIGHT 2006 ACS on STN
AN 1980:527553 HCAPLUS
DN 93:127553
TI Electrochemical oxidation of nucleic acid and proteins at a graphite electrode. Qualitative aspects
AU Brabec, Viktor
CS Inst. Biophys., Czech. Acad. Sci., Brno, 612 65, Czech.
SO Bioelectrochemistry and Bioenergetics (1980), 7(1), 69-82
CODEN: BEBEBP; ISSN: 0302-4598
DT Journal
LA English
AB The electrochem. oxidation of DNAs differing in their guanine-plus-cytosine (G+C) contents at a pyrolytic graphite electrode was investigated by differential pulse (DP) voltammetry. At pH 6.4 all samples of DNA studied yielded a peak G on DP voltammograms corresponding to the oxidation of guanine residues, and a peak A corresponding to the oxidation of adenine residues. The potentials of peaks G and A were not influenced by the G+C content in DNA and differed by 0.28 V. The ratio of the heights of peaks A and G was identical with great accuracy to the ratio of the contents of adenine plus thymine and G+C. This was exploited for developing a new method for the determination of the G+C content in DNA. The electrochem. oxidation of proteins at a spectroscopic graphite electrode impregnated with paraffin wax (WISGE) was studied by linear sweep, cyclic, and DP voltammetry. Proteins were electrochem. oxidizable at the WISGE. They yielded a faradic peak on voltammograms in the vicinity of 0.7-0.8 V in a neutral medium. The voltammetric study of proteins, poly(amino acids), peptides of known amino acid composition, and free amino acids revealed that the irreversible electrooxidn. of tyrosine (and, contingently, of tryptophan) residues is responsible for the appearance of the protein peak at the WISGE. DP voltammetry at a graphite electrode might become another electrochem. method suitable for studies of conformational changes of proteins, and in particular of those not containing cystine or cysteine (e.g. histones).

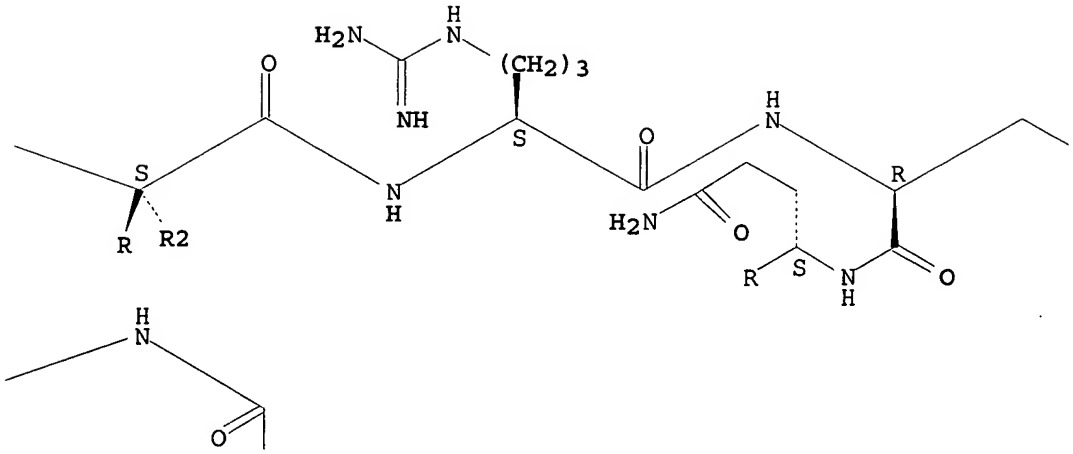
CC 6-13 (General Biochemistry)
Section cross-reference(s): 9
IT 9001-63-2 9001-99-4 9004-10-8, reactions **24345-16-2**
25619-78-7 25667-16-7 **74836-97-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. oxidation of, at graphite **electrode** impregnated with paraffin wax)
IT **24345-16-2 74836-97-8**
RL: RCT (Reactant); RACT (Reactant or reagent)
(electrochem. oxidation of, at graphite **electrode** impregnated with paraffin wax)
RN 24345-16-2 HCAPLUS
CN Apamin (8CI, 9CI) (CA INDEX NAME)

Absolute stereochemistry.

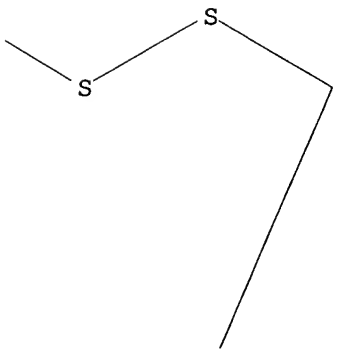
PAGE 1-A



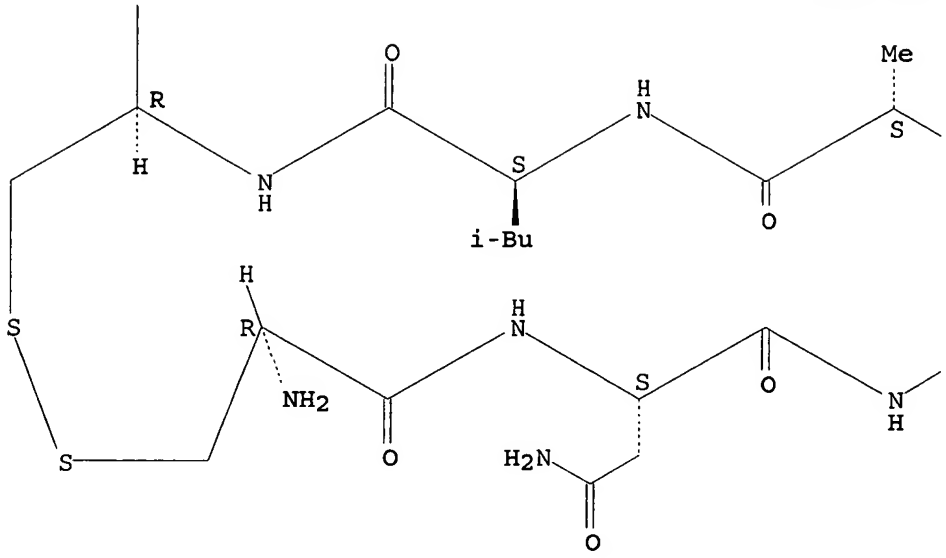
PAGE 1-B



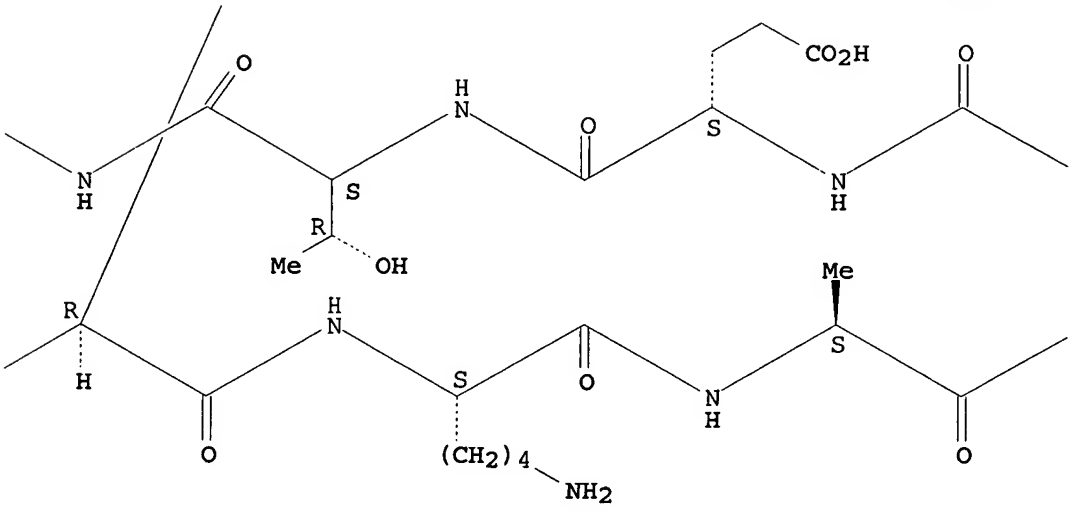
PAGE 1-C



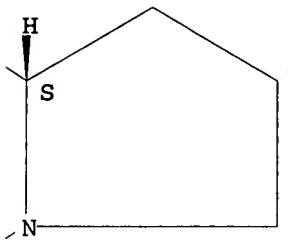
PAGE 2-B



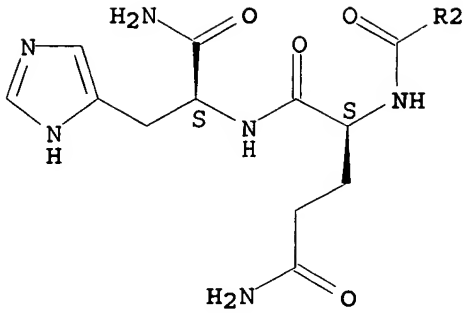
PAGE 2-C

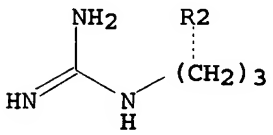


PAGE 2-D



PAGE 3-A



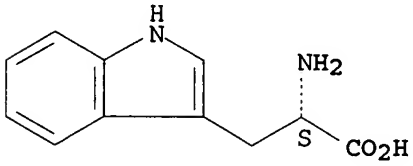


RN 74836-97-8 HCAPLUS
CN L-Tryptophan, polymer with L-tyrosine (9CI) (CA INDEX NAME)

CM 1

CRN 73-22-3
CMF C11 H12 N2 O2

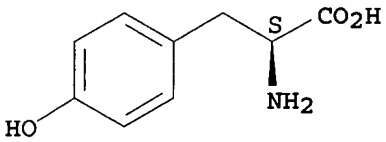
Absolute stereochemistry.



CM 2

CRN 60-18-4
CMF C9 H11 N O3

Absolute stereochemistry. Rotation (-).



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